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Climatological Data for December, 1909.
DISTRICT No. 1, NORTH ATLANTIC STATES.

WILFORD M. WILSON, District Editor.

GENERAL CLIMATOLOGICAL CONDITIONS.

There were two events worthy of note in connection with the weather conditions for the month of December, 1909; (1) the heavy precipitation of the 13th and 14th, which tended to relieve the drought that had been practically continuous over the eastern part of Pennsylvania since the last of June, and caused the first considerable rise in the Delaware and Susquehanna rivers for several months; and (2) the storm of the 25th and 26th that takes its place among the notably severe and destructive storms that have visited the North Atlantic States during the last half century.

The month, as a whole, was colder than usual throughout the district, except along the coast of Maine, and the precipitation was slightly deficient, except over most of the central part of the district, including the lower Delaware and Susquehanna basins.

TEMPERATURE.

The average temperature for the district ranged from 28.3° in New England to 31.3° in the Maryland and Delaware section and, except for a small area on the coast of Maine, was everywhere below normal. The average temperature for the northern part of New England was normal or slightly above, but the deficiency increased gradually southward to the southern limits of the district, the average temperature for that part of Virginia included in the district being 30.3°, which is 4.7° below normal. At some individual stations in that section the average daily deficiency was nearly 7°.

The highest temperatures for the month were generally recorded on the 5th, except in New England and New York, where the 14th was the warmest day of the month at many stations. The lowest temperatures occurred, almost without exception, with the cold weather that followed the storm of the 25th and 26th and were generally recorded from the 29th to the 31st.

The month opened mild, with gradually increasing temperature that reached its maximum generally on the 5th, when the highest temperatures of the month were recorded at most stations in the southern part of the district. Temperatures ranging from 60° to 68° were quite common on this date in Maryland, Delaware, Virginia, and West Virginia, the highest recorded at any individual station being 70° at Upper Tract, Pendleton County, W. Va.

After the passage of this warm period, which was general over the district and resulted from the prevalence of southerly winds occasioned by the presence of an area of low barometric pressure over the Great Lakes, there was a rather abrupt fall in temperature that culminated on the 9th and 10th in moderately low seasonal temperatures, especially over the northern part of the district.

The second warm period of the month occurred on the 13th, when the highest temperatures of the month were recorded at many stations in the central and northern sections of the district.

From the 9th to the 22d the weather was moderately cold, especially in New Jersey and Pennsylvania, where the minimum temperatures at a few points approached zero during this period. Seasonable weather prevailed generally until the 28th, when it was followed by severe cold that marked the closing days of the month.

The temperature during the storm of the 25th and 26th was generally near the freezing point in the southern, and slightly below freezing over the northern part of the district, but when the wind changed to the west and northwest and the weather cleared, there was a sharp fall in temperature throughout the district, ranging from 20° to 30° or more within the 24 hours. The cold weather spread rapidly and by the morning of the 29th temperatures from zero to 10° below were general over the interior of New York and New England, and by the morning of the 30th the cold had reached the southern limits of the district, resulting in unseasonably low temperatures in that section.

PRECIPITATION.

The average precipitation for the district was 3.25 inches, which is slightly below the December normal. The greatest precipitation occurred in New Jersey, the average for the State being 4.45 inches, and the least in West Virginia where the average was 2.37 inches. There was a slight deficiency in all sections, except Pennsylvania and New Jersey, where the average excess was about half an inch. The most important deficiency occurred over the upper watersheds of the Delaware and Susquehanna rivers, where the total precipitation for the month was comparatively light, ranging from 50 to 75 per cent of the normal amount. Over that part of Pennsylvania, where the drought has been serious during the past few months, the precipitation was generally above normal and in some localities excessive.

The large amount of snow now on the ground in that section of the State, when melted, gives promise of restoring to the soil much of the moisture needed to place it in normal condition and to increase the flow in the streams now at a low stage.

With the exception of light local snows, principally in New England and New York, the weather from the 1st to the 6th was generally fair and pleasant over the entire district. On the morning of the 7th rain began over West Virginia and, during the day, spread to the remainder of the district, except New England, where a moderate snowfall occurred during the night. The precipitation from this storm was not heavy but the distribution was remarkably uniform.

There was a period of fair weather from the 9th to the 12th, but during the early morning of the 13th, a storm set in over the southern part of the district and, advancing northward, reached New England by the evening of that day. The precipitation that accompanied this storm, which was mostly in the form of rain and sleet in the southern, and snow and sleet in the northern parts of the district, was very general, heavy, and in some localities excessive.

Excessive precipitation, 2.50 inches or more in 24 hours, was reported on the 13th and 14th from 22 stations in New Jersey, 15 in Pennsylvania, 8 in Maryland, 4 in New York, 3 in New England, and 1 in Virginia. The greatest amount recorded at any station in 24 hours was 4.21 inches at Coatesville, Chester County, Pa., on the 13th, which was, however, closely followed by a record of 4.20 inches at Scarsdale, Westchester County, N. Y., on the 13th and 14th. Out of the 53 stations reporting excessive precipitation on these dates, 3 recorded 4.00 inches or more and 13 recorded 3.00 inches or more within 24 hours.

This storm was accompanied with high winds which, with the heavy accumulation of ice, caused serious damage to electric wires in the central and northern parts of the district.

The weather was generally fair and pleasant from the 15th to the 25th, when the most notable storm of the month occurred.

The month ended with fair and decidedly cold weather for the season.

RIVER CONDITIONS.

The very low stage of water, which has characterized the condition of practically all streams in the district during the past few months, continued until the rains of the 13th and 14th. The effect of these rains was apparent in the rise that occurred in the Hudson River at Castleton and Stuyvesant from the 9th to the 14th. There was also a slight rise in upper branches of Delaware and Susquehanna rivers at this time, but the most important rise in the Susquehanna occurred at Harrisburg, where it reached a stage of 3.0 feet above the zero of the gage on the 16th, which is the highest recorded since June 23.

The Delaware reached a stage of 4.6 feet at Phillipsburg on the 14th. The rise in these streams was, however, only temporary, but a fairly good flow of water, as compared with the stages since the last of June, was maintained to the close of the month.

MISCELLANEOUS.

The average number of days for the district on which precipitation occurred was 6, and ranged from 7 in New York to 4 in Virginia. The average number of clear days was 13; partly cloudy 9, and cloudy 9. The cloudiness was greatest over Pennsylvania and the southern part of New York, Binghamton reporting only 34 hours of sunshine during the month. The average number of hours of sunshine, as recorded at 13 stations in the district, was 151, an increase over November of about 10 hours. The greatest percentage of sunshine, 69 per cent of the possible, occurred at Washington, D. C., and the least, 12 per cent, at Binghamton, N. Y. There were 10 days during the month when the sunshine averaged 80 per cent or more of the possible, 11 with an average between 20 and 80 per cent, and 10 with 20 per cent or less.

THE CHRISTMAS STORM OF 1909.

The storm of Christmas, 1909, which takes rank among the notably severe and destructive winter storms that have visited the North Atlantic States during the last half century, was first noted on the morning of December 23, as a rather weak cyclonic disturbance, central in southern Arizona. By the morning of the 24th it had advanced eastward to the Texas Panhandle and, although the pressure was but little below the normal, the extensive precipitation area that covered most of the region between the Rocky Mountains and the Mississippi River and extended from the west Gulf coast to the Canadian border, indicated a storm somewhat unusual in character.

During the succeeding 24 hours the center moved from western Texas northeastward to Indiana, a distance of some 1,200 miles, at a rate of about 50 miles per hour, which is about twice the average rate of progress of the ordinary storm. The observations on the morning of the 25th showed that rain or snow had occurred at nearly all points, except in New England, from the Missouri River eastward to the Atlantic coast, and an increase of intensity which, from a somewhat weak disturbance on the previous morning, had developed into a storm that dominated conditions over the entire eastern half of the country.

The advancement of the storm from Indiana eastward to the the Atlantic coast, where it appeared on the morning of the 26th, was marked by the same rapid progress that had characterized its previous movement, and by a further increase of intensity that gave a barometric reading at Cape May, N. J., which was probably near the center at that time, of 28.57 inches, the lowest ever recorded at that station. On reaching the coast off New Jersey, the storm made an abrupt turn to the north, passing up the New England coast during the 26th and disappearing from range of observation over the North Atlantic Ocean on the 27th.

A comparison of the conditions incident to this storm with those of the storm of March 11 to 14, inclusive, 1888, shows that, while the two storms were similar in many respects, there was an essential difference, especially as to the rate of movement. Both storms were of marked intensity and both, after reaching the Atlantic coast, turned abruptly north and followed closely the general trend of the coast line; but the storm of the current month made the turn to the north from near the southern end of New Jersey while its famous predecessor swept the coast from South Carolina to Nova Scotia. Again, the storm of the current month, after making the turn to the north off New Jersey, maintained the rapid movement that had characterized its progress from Texas to the coast, and made the journey from New Jersey to Nova Scotia in about 24 hours, while the storm of 1888 remained practically stationary off Long Island for a like period on the 12th and 13th. Thus, the duration of the storm of 1888 over the North Atlantic States under its influence was about 24 hours longer than the storm of December, 1909. That New England escaped, in the present instance, something like the heavy fall of snow that occurred with the storm of 1888, was not because the storm of the current month was less intense, but because its more rapid movement shortened its duration. The unusually slow movement of the storm of 1888, during March 12 and 13, caused a continuance of easterly gales over the whole of New England, accompanied by blinding snow for a period of 48 hours, and resulted in an accumulation of snow over the interior of New England and New York, amounting to about 40 inches, which is more than twice the total amount that occurred with the storm of the current month. The total snowfall in the district for the two days, December 25 and 26, was greatest over eastern Pennsylvania and Delaware, where it averaged more than 20 inches. It may be noted that here the storm center made its abrupt turn to the north and, as its movement was probably retarded to some extent by the force that changed its direction, the accompanying snow was of longer duration and the accumulation, therefore, greater than elsewhere along its track.

The velocity of the wind during the progress of the storm was not excessively high, the following being the maximum velocities attained, in miles per hour, with the direction, at the several stations along the coast: Eastport, Me., 50, northeast; Portland, Me., 40, north; Boston, Mass., 45, northeast; Nantucket, Mass., 61, east; Block Island, R. I., 72, northeast; Providence, R. I., 37, north; New Haven, Conn., 47, north; New York City, N. Y., 58, northeast; Philadelphia, Pa., 36, northwest; Atlantic City, N. J., 37, northeast and northwest; Cape May, N. J., 40, northwest; and Baltimore, Md., 27, northwest.

Aside from the wrecking of a steamship, near Toms River, N. J., and several smaller vessels that were driven ashore on the New England coast, the damage on the water was comparatively slight.

On land the greatest loss of property occurred with the tidal wave that swept the New England coast; the wrecking of electric lighting, trolley, telegraph, and telephone systems and the general interruption that resulted to transportation and traffic at nearly all points from the Potomac River to Maine.

The loss of life that resulted from this storm can only be estimated. It is known that at least 2 persons near Everett, Mass., were caught in the tidal wave and drowned; that 6 persons died from exposure in the vicinity of New York City; that 12 men were lost in Boston Harbor by the sinking of the schooner *Parker*, and that several were killed by trains during the continuance of the blinding snow; but this is probably only the smallest part of the loss of life that may be traced directly or indirectly to the Christmas storm of 1909.

The following items are of interest in showing the conditions brought about by the storm in various localities:

BOSTON, MASS.

The snow began at 6 p. m., December 25, falling lightly during the following 2 or 3 hours, after which the rate became heavier and averaged about 1 inch per hour during the remainder of the fall, which ended at 7:15 p. m. of the 26th. During

the night of the 25th and forenoon of the 26th the snow was very moist, which, with temperature slightly below the freezing point, caused a great accumulation of snow and ice on poles and wires and all other exposed objects. The wind was east from 6 p. m. of the 25th, becoming northeast at 2 a. m. of the 26th, north at 10 a. m., and northwest at 8 p. m. of the 26th. The velocity gradually increased during the evening and night of the 25th to a maximum of 45 miles northeast at 5:10 a. m. of the 26th, after which time it gradually diminished until evening of the 26th.

The total snowfall of the storm was 12.3 inches, about the average amount that occurs with heavy snowstorms in this section. Since 1891 snowfalls of 10 inches or more in a single storm have occurred 10 times. The greatest fall during this time was 19.0 inches on March 2 and 3, 1892. The wind velocity during the storm of the current month was not unusual or exceptional in any way. The extreme maximum velocities at Boston are about 60 miles per hour, and occur on the average once or twice in 10 years. In comparison with the storm of November 27, 1898, known as the "*Portland* storm," when the steamer *Portland* with 130 people went down, the snowfall was nearly the same, but the wind in the "*Portland* storm" was of much longer duration and attained a higher velocity, the maximum being 60 miles per hour, as compared with 45 miles per hour of the storm of December 26, 1909.

The marked feature of the current storm was very high tide, due (1) to there being a high run of tides at this time; (2) the highest wind occurring during the rising tide; and (3) highest velocities at about the time of the flood tide. This favorable combination caused a rise in the tide of 15.40 feet, more than 4 feet higher than normal tide at this time, and is said to have been the highest tide since April 16, 1851, when Minot's Light was destroyed, and 0.4 of an inch higher than the tide that occurred with the "*Portland* storm" of November 27, 1898. The high tide caused great damage along the shore by flooding cellars and other low-lying property, particularly in Chelsea. The breaking of a dyke caused the flooding of a portion of the residential section of Everett, Mass., to a depth of several feet, and temporarily drove a large number of people from their homes, and caused the death of 2 persons who were caught in the flood.

The storm, occurring on Sunday, caused much less inconvenience to those using local transportation than had it occurred on a week day, as the conditions were such as to greatly hamper, and at times entirely suspend ferry and railroad movements. Great damage was done to poles and wires, hundreds of wires being broken, cross-arms torn off, and large poles prostrated by the high wind and the weight of the accumulated snow and ice. All wire service, electric light, telephone, and telegraph, was put entirely out of commission in many localities, and the damage can not be fully repaired for weeks. The damage to property on land was probably the greatest caused by any storm for many years in Boston and vicinity, and is estimated by some of the local papers to amount to nearly $5,000,000.

NEW YORK, N. Y.

The barometric pressure fell rapidly on the 25th and the early morning of the 26th, reaching a minimum sea-level reading of 28.81 inches as shown by the barograph trace at 2:30 a. m. Very light snow began at 11 a. m. of the 25th, with light northeast winds; the temperature was about freezing and so remained throughout the storm. The wind velocity and rate of snowfall increased gradually during the afternoon and rapidly after 5 p. m., the snow soon after that time becoming heavy and the wind high, reaching a maximum velocity of 58 miles per hour from the northeast at 12:16 a. m. of the 26th. At first the snow adhered to exposed objects, heavily loading trees, wires, etc., but before 10 p. m. it became drier and drifted badly. After midnight the fall was light and it so continued during most of the forenoon and part of the afternoon of the 26th, finally ending at 2:35 p. m. The wind backed to northwest between 3 and 5 a. m. and continued high much of the time on the 26th.

The total snowfall was 10.1 inches, practically all of which fell during 24 consecutive hours; with one exception (a fall of 14.0 inches on December 26 and 27, 1890) this is the greatest 24-hour snowfall on record here for December. The greatest fall for any 24-hour period last winter was 4.3 inches, while the record for the winter preceding is 10.2 inches.

Within the city the principal detrimental effect of the storm was to delay transportation. Automobiles and horse-drawn vehicles were stalled in drifts; trains on elevated lines were much behind schedule time; trolley service, especially in outlying districts, was badly crippled, and some lines suspended operations altogether; trains over some railroads entering the city were several hours late, and navigation on the rivers and bay was impeded. As their wires are laid under ground here, telegraph and telephone companies report little hindrance to their business in this city and the large towns in the vicinity; but a number of the smaller communities near by were without means of communication by telegraph and telephone, wires and poles being down on account of the storm. Some accidents due directly to the storm were reported, but largely on account of the high temperature, there were fewer deaths due to exposure and less intense suffering on the part of the poor than usually accompany our great winter storms.

As might be expected from the course of the center, the storm appears to have been more severe a few miles south of the city and over Long Island than in this immediate vicinity.

PHILADELPHIA, PA.

The heaviest 24-hour snowfall on record at Philadelphia occurred on December 25 and 26, 1909. Light, moist snow began to fall at 9:10 a. m. of the 25th and continued all day, with very little wind and no drifting. At 8 p. m. there were about 5 inches of light snow on the ground, and shortly thereafter the wind began to rise and the storm increased in intensity and continued all night. By midnight many street cars were blocked and abandoned in all parts of the city. In some instances the passengers remained in the cars until morning. Trains arrived late during the fore part of the night, and before morning all railroad traffic was effectually stopped. Telegraph and telephone service was badly crippled. The temperature ranged from 29° to 32° during the entire storm, and the snow piled up into heavy wet drifts which were 5 or 6 feet deep in many places. A total of 21.0 inches of snow fell in 23 hours. Some of it melted as it fell, so that only 16.0 remained on the ground at the end of the storm. Four days were required to completely clear the railroad tracks and get the trains to running on schedule time. The street car tracks were cleared in the residence section of the city by piling the snow up in the street on either side, and thus forcing teamsters to occupy the car tracks, which were the only avenues open to travel.

The only storm in Philadelphia during the last 38 years that is comparable with this one, occurred on March 12, 1888. At that time the storm began with rain, which changed to snow, with rapidly falling temperature. There were only 10.5 inches of snowfall, but the wind attained a velocity of 66 miles per hour, and the storm caused so much suffering and loss of life that its occurrence is still vivid in the minds of those who were residents of the city at that time. During the 10-day period, from February 5 to 14, 1899, there was a total snowfall of 30.3 inches, it being the greatest amount accumulated on the ground at any time during the last 38 years.

TABLE 1.—*Climatological data for December, 1909. District No. 1, North Atlantic States.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Maine.																			
Bar Harbor	Hancock	20	23	26.6	− 0.2	47	5†	− 4	28	32	2.03	− 2.87	0.83	11.5	6	15	8	8	w.	William Miller.
Cornish	York	778	54	25.6	+ 0.4	56	5	− 19	31	46	3.65	+ 0.06	1.96	15.0	6	19	4	8	w.	T. H. West.
Eastport	Washington	53	37	25.8	+ 0.5	44	14	− 2	30	14	1.69	− 2.28	0.42	9.6	10	5	7	19	w.	U. S Weather Bureau.
Fairfield	Somerset	90	24	25.0	+ 3.3	46	6	− 9	29	39	1.48	− 1.19	0.71	14.8	5	20	7	4	.....	E. F. Parker.
Farmington	Franklin	450	12	23.6	+ 6.1	50	5	− 7	29	32	3.02	− 0.13	2.08	15.0	6	11	13	7	nw.	State Normal School.
Gardiner	Kennebec	163	17	25.9	+ 2.2	50	2†	− 10	28	39	2.02	− 1.06	1.20	8.5	7	17	5	9	w.	S. D. Soule.
Greenville	Piscataquis	1,000	5	19.0	.....	37	6	− 8	30	21	2.59	.....	1.04	26.3	12	.....	.....	.....	.....	U. S. Weather Bureau.
Houlton	Aroostook	362	7	20.4	.....	40	6†	− 23	30	31	2.05	.....	0.80	21.0	5	15	10	6	ne.	Bangor & Aroostook R.R.
Lewiston	Androscoggin	185	35	23.0	+ 0.4	49	6	− 8	28	33	2.99	− 1.16	1.62	10.3	6	13	9	9	nw.	Union Water Power Co.
Madison	Somerset	257	6	21.6	.....	44	6†	− 9	28	31	2.65	.....	1.68	13.2	5	12	8	11	nw.	Wm. Jardine.
Millinocket	Penobscot	386	6	23.3	.....	45	5†	− 9	29	31	2.07	.....	1.09	17.0	8	8	2	21	nw.	H. S. Ferguson.
North Bridgton	Cumberland	450	18	25.2	.....	52	6	− 8	31	35	2.95	.....	1.82	16.0	5	10	15	6	nw.	G. E. Chadbourne.
Orono	Penobscot	129	40	23.6	+ 2.3	48	5	− 12	29	32	1.98	− 1.61	0.70	15.2	6	10	8	13	nw.	Agricultural Exp. Stat'n.
Patten	Penobscot	550	7	18.5[c]	.....	41[c]	6	− 21[c]	29	39[c]	1.95[c]	.....	0.00[c]	19.5[c]	5[c]	8[c]	5[c]	13[c]	w.	Bangor & Aroostook R.R.
Portland	Cumberland	99	38	27.2	+ 0.1	48	14	− 1	31	23	2.06	− 1.62	0.79	8.4	6	15	7	9	nw.	U. S. Weather Bureau.
Rumford Falls	Oxford	505	16	23.8	.....	44	6	0	29	18	2.13	.....	1.53	14.8	6	20	6	5	nw.	Chas. A Mixer, C. E.
Van Buren	Aroostook	510	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Bangor & Aroostook R.R.
Winslow	Kennebec	90	14	23.2	.....	49	6	− 16	28	39	1.48	.....	0.65	13.0	4	18	7	6	w.	Hollingsworth & Whitney
New Hampshire.																				
Alstead Center	Cheshire	1,120	5	20.6	.....	41	6	− 7	30	18	1.69	.....	0.54	15.5	7	16	5	10	nw.	Frank Dewing.
Benton	.....	.....	.....	20.8	.....	44	6	− 6	30	24	0.78	.....	0.42	.....	4	14	15	2	nw.	State Sanatorium.
Bethlehem	Grafton	1,470	17	18.8	.....	41	14	− 13	30	25	1.14	.....	0.40	10.5	9	7	4	20	w.	Benj. Tucker.
Concord	Merrimac	350	49	24.6	− 1.8	50	6	− 7	29	31	2.56	− 0.79	1.56	8.5	7	11	13	7	nw.	U. S. Weather Bureau.
Durham	Stafford	88	14	26.6	.....	53	7	− 7	29	41	2.91	.....	1.93	13.1	4	17	9	5	nw.	Agricultural Exp. Stat'n.
Franklin	Merrimac	440	10	24.4	.....	51	6	− 6	28	35	2.69	.....	1.70	13.2	5	17	7	7	nw.	Dr. C. P. Webster.
Grafton	Grafton	863	23	20.8	.....	48	6	− 16	28	41	2.27	.....	.00	16.0	6	14	7	10	nw.	P. R. Kimball.
Hanover	Grafton	603	75	21.0	− 0.4	45	6	− 10	30	31	1.90	− 0.46	0.90	18.4	8	11	6	14	nw.	Dartmouth College.
Keene	Cheshire	506	24	23.1	− 2.5	50	6	− 12	31	34	2.64	− 0.10	1.00	17.5	6	14	7	10	nw.	Samuel D. Wadsworth.
Nashua	Hillsboro	125	24	25.6	− 2.1	1	6	− 11	29	32	4.24	+ 0.87	2.00	21.0	6	18	9	4	nw.	Jackson Company.
Newton	Rockingham	.....	21	25.7	− 2.0	53	6	− 12	29	34	3.56	+ 0.71	1.76	16.0	4	15	13	3	nw.	W. C. Gale.
Plymouth	Grafton	500	21	22.7	+ 0.5	46	6	− 7	28	25	1.58	− 1.59	0.77	13.0	5	15	5	11	nw.	Mrs. H. G. Trow.
West Ossipee	Carroll	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Camp Ossipee
Vermont.																				
Bloomfield	Essex	.....	2	20.2	.....	44	6	− 18	30	34	0.93	.....	0.32	7.0	9	12	18	1	s.	Lyman Falls Co.
Cavendish	Windsor	910	6	21.4[b]	.....	49[b]	6	− 10[b]	30	34[b]	2.63[b]	.....	1.89[b]	21.5[b]	4[b]	10[c]	8[c]	10[c]	.....	Miss M. A. Kingsbury.
Chelsea	Orange	1,640	14	18.8	.....	42	6	− 17	30	29	1.31	.....	0.40	12.0	5	9	9	13	n.	W. F. Dewey.
Jacksonville	Windham	1,000	24	21.0	− 1.8	57	1†	− 12	30	46	0.88	− 3.35	0.39	41.7	14	15	11	5	nw.	Miss Martha French.
Manchester	Bennington	980	10	20.8	.....	40	5†	− 12	30	22	1.61	.....	0.60	15.0	5	7	9	15	sw.	N. M. Canfield.
St. Johnsbury	Caledonia	711	16	21.2	.....	42	6†	− 14	30	27	1.09	.....	0.49	7.2	6	4	5	22	nw.	Fairbanks Museum.
Woodstock	Windsor	700	17	19.6	.....	44	5	− 20	30	33	2.75	.....	1.85	23.0	3	7	4	20	.....	John S. Eaton.
Massachusetts.																				
Amherst	Hampshire	222	20	25.6	− 1.7	52	5	− 8	30	28	2.95	− 0.56	1.15	12.0	5	8	13	10	nw.	Agricultural Exp. Stat'n.
Blue Hill	Norfolk	640	25	25.7	− 4.1	50	6	− 1	31	19	3.80	+ 0.35	1.92	19.8	9	18	5	9	w.	Blue Hill Observatory.
Boston	Suffolk	125	39	6.8	− 0.8	56	6	4	31	20	3.19	− 0.22	1.71	12.3	6	17	7	7	w.	U. S. Weather Bureau.
Chestnut Hill	Suffolk	124	29	28.4	− 2.0	52	6	1	31	28	4.39	+ 1.19	2.27	16.0	3	.....	.....	.....	.....	Metrop. Water Board.
Clinton	Worcester	370	13	26.8	.....	55	6	− 4	29	36	4.54	.....	2.03	13.0	7	20	4	7	.....	Metrop. Water Board.
Concord	Middlesex	139	19	26.1	− 2.0	54	6	− 8	29	33	3.13	+ 0.25	1.28	19.8	7	11	15	5	nw.	F. A. Tower.
Fall River	Bristol	200	43	30.0	− 4.2	52	8	3	30	23	3.26	− 0.17	1.40	8.0	8	13	14	4	nw.	C. V. S. Remington.
Fitchburg	Worcester	550	26	26.6	− 1.9	52	6	− 1	30†	23	4.01	+ 0.46	1.68	18.0	6	21	4	6	nw.	Dr. A. P. Mason.
Framingham	Middlesex	160	29	27.4	− 2.9	52	6	− 5	29	32	3.94	+ 0.31	2.06	16.0	4	.....	.....	.....	.....	Metrop. Water Board.
Hyannis	Barnstable	31	18	30.6	.....	47	5†	5	31	19	2.66	.....	1.46	4.0	6	19	7	5	nw.	C. F. Sleeper.
Lawrence	Essex	51	25	26.5	− 2.1	54	6	− 13	29	35	3.68	+ 0.47	1.76	21.0	6	13	14	4	nw.	Essex Company.
Lowell	Middlesex	100	24	27.2	− 1.6	52	6	− 9	29	34	4.08	+ 0.53	1.94	.....	5	.....	.....	.....	.....	Prop's. Locks and Canals.
Middleboro	Plymouth	53	23	28.0	− 3.0	54	6	− 1	29	31	3.28	+ 0.07	2.56	8.6	5	10	13	8	w.	A. R. Gurney.
Monson	Hampden	420	25	25.1	− 3.6	48	14	− 8	30	24	2.35	− 1.27	0.80	12.2	6	24	2	5	nw.	Dr. G. E. Fuller.
Nantucket	Nantucket	15	23	33.2	− 3.5	52	14	11	31	19	1.85	− 1.79	1.10	0.8	10	11	11	9	nw.	U. S. Weather Bureau.
New Bedford	Bristol	88	97	30.0	− 2.0	52	6	4	30†	21	.....	.....	.....	.....	.....	21	4	6	nw.	City Engineer.
Norfolk	Norfolk	244	6	28.6	.....	62	5	− 7	29	39	3.32	.....	1.85	18.0	5	13	5	3	.....	Miss Ruby H. Martyn.
Northampton	Hampshire	205	1	25.8	.....	43	6†	− 3	30†	27	3.77	.....	2.12	13.5	4	11	8	12	nw.	D. E. Hoxie.
Plymouth	Plymouth	.....	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Miss L. B. Knapp.
Provincetown	Barnstable	40	22	32.4	− 2.7	50	6	9	31	16	3.06	− 0.66	1.80	3.5	6	23	0	8	nw.	Gideon Bowley.
Rockport	Essex	25	7	30.2	.....	48	5†	2	31	25	4.97	.....	2.80	6.0	4	15	12	4	nw.	C. F. P. Bearse.
Rutland	Worcester	1,160	7	23.6	.....	49	6	− 5	29	29	3.90	.....	2.45	15.6	6	20	6	5	w.	State Sanatorium.
South Egremont	Berkshire	764	7	21.2	.....	40	6†	− 10	29	32	3.47	.....	1.10	23.5	7	.....	.....	.....	nw.	Roscoe C. Taft.
Turners Falls	Franklin	200	18	25.6	+ 0.1	47	5†	− 10	30	24	2.52	− 0.77	1.80	17.5	3	.....	.....	.....	.....	Turners Falls Co.
Westboro	Worcester	298	35	28.4	− 1.8	50	5	− 2	29	28	4.00	+ 0.72	1.50	20.5	5	.....	.....	.....	.....	G. S. Newcomb.
Williamstown	Berkshire	711	28	23.3	− 4.6	41	6†	− 7	31	23	1.70	− 1.54	0.67	16.3	8	6	8	17	w.	Williams College.
Worcester	Worcester	518	17	26.4	.....	51	6	− 1	31	24	3.32	.....	0.98	16.9	8	14	9	8	w.	G. W. Swan.
Rhode Island.																				
Block Island	Newport	26	29	32.7	− 3.9	53	14	9	0	20	3.10	0.72	1.34	0.6	6	9	12	10	nw.	U. S. Weather Bureau.
Bristol	Bristol	53	23	31.2	− 2.4	50	6†	6	30	19	3.23	− 0.08	1.69	6.0	5	22	4	5	nw.	N. G. Herreshoff.
Kingston	Washington	250	20	28.2	− 3.5	53	6	− 3	31	27	4.04	+ 0.31	1.94	13.5	5	18	7	6	w.	Nathaniel Helme.
Narragansett Pier	Newport	22	27	30.2	− 3.3	54	6	2	31	26	2.65	0.87	1.32	3.5	7	21	4	6	w.	U. S. Weather Bureau.
Providence	Providence	182	5	29.5	− 2.1	54	6	1	31	23	2.70	− 0.71	1.31	10.3	6	14	11	6	nw.	Do.
Connecticut.																				
Bridgeport	Fairfield	20	16	29.8	.....	55	6	− 1	31	29	4.43	.....	2.37	14.3	6	20	5	6	nw.	Wm. Jennings.
Canton	Hartford	900	48	24.4	− 3.9	49	6	− 6	30	31	5.14	+ 1.53	3.06	20.0	5	14	11	6	nw.	G. J. Case.
Colchester	New London	370	23	25.6	− 6.4	50	6†	− 4	30	32	4.48	+ 1.08	2.30	16.5	6	19	4	8	w.	S. P. Willard.
Cream Hill	Litchfield	1,300	13	23.8	.....	45	6	− 7	3[illegible]	25	2.57	.....	1.17	21.0	4	11	8	12	w.	C. L. Gold.
Danielson	Windham	300	7	25.1	.....	45	5	− 6	29†	30	3.80	.....	1.67	15.0	4	23	3	5	n.	F. E. Bitgood.
Hartford	Hartford	159	5	28.2	.....	52	14	0	30	23	2.83	.....	1.29	17.5	5	13	9	9	nw.	U. S. Weather Bureau.
Hawleyville	Fairfield	600	11	26.6	.....	50	14	− 1	30	26	3.73	.....	3.08	10.0	3	19	6	6	w.	E. N. Hawley.
New Haven	New Haven	107	122	30.2	− 1.6	54	6	1	30	22	4.70	+ 1.05	2.06	15.8	5	15	9	7	w.	U. S. Weather Bureau.
New London	New London	47	39	30.6	− 2.1	54	6	0	30	24	2.98	− 0.30	1.31	5.5	4	20	5	6	w.	T. C. Dillon.
North Grosvenordale	Windham	409	19	26.0	− 3.6	55	6	− 9	31	38	2.71	− 0.72	1.06	.....	3	18	7	6	w.	Grosvenor Dale Co.
Norwalk	Fairfield	116	19	27.2	− 4.4	52	6	− 1	31	28	3.58	+ 0.78	2.31	7.5	5	19	6	6	nw.	Geo. C. Comstock.
Southington	Hartford	140	40	26.8	− 2.0	50	6†	− 5	28	32	3.75	+ 0.39	2.00	12.0	5	14	12	5	w.	Luman Andrews.
Storrs	Tolland	640	21	26.6	− 3.1	49	14	− 3	31	25	3.82	+ 0.48	2.26	6.0	3	15	11	5	w.	Agricultural Exp. Stat'n.
Torrington	Litchfield	625	8	25.2	.....	52	7	− 3	28	33	2.79	.....	1.80	10.8	7	16	5	10	s.	E. H. Forbes, Ph. D.
Voluntown	New London	260	24	26.8	− 5.5	56	5	− 7	29	39	3.45	− 0.70	2.10	6.2	4	11	10	10	nw.	Rev. E. Dewhurst.
Waterbury	New Haven	400	34	28.0	− 2.7	54	6	− 3	30	31	4.83	+ 0.81	2.79	21.5	5	.....	.....	.....	.....	N. J. Welton.
New York.																				
Addison	Steuben	1,000	19	26.6	− 2.0	55	14	− 3	30†	31	1.60	− 0.63	0.48	5.5	6	10	2	19	nw.	H R. Ainsworth.
Albany	Albany	97	88	26.3	− 1.2	45	5	− 2	30	22	2.36	− 0.21	1.49	15.5	6	9	13	9	nw.	U. S. Weather Bureau.
Amsterdam	Montgomery	277	5	22.0	.....	42	14	− 8	30	24	2.00	.....	1.50	10.0	4	23	0	8	w.	Emery Ellwood
Athens	Greene	90	7	25.8	.....	48	5	− 4	31	24	2.62	.....	1.36	16.5	5	6	16	9	nw.	E. C. Brooks.
Ballston Lake	Saratoga	400	5	21.0	.....	43	6	− 15	31	29	2.60	.....	1.53	18.3	7	11	9	11	w.	Geo. R. Schauber.

TABLE 1.—*Climatological data for December, 1909. District No. 1*—Continued.

Stations.	Counties	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.					Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	
New York—Cont'd.																				
Bedford	Westchester	450	11	28.9	− 1.9	54	14	− 4	31	26	3.86	+ 0.14	2.23		5	25	1	5		Dr. L. Rosenburg.
Binghamton	Broome	875	18	25.3	− 2.4	43	13	0	30	24	1.47	− 0.97	0.72	6.9	6	4	2	25	w.	U. S. Weather Bureau
Bouckville	Madison	1,350	12	21.0	− 1.5	41	14	−12	30	21	2.93	− 0.77	0.64	17.5	12	3	9	19	nw.	L. W. Griswold.
Boyds Corners	Putnam	560	27								4.06	− 0.16								Thomas Manning.
Carmel	Putnam	500	17	24.7	− 4.8	48	6	− 5	30	24	4.06	− 0.21	2.34	13.0	5	22	1	8	nw.	Thomas Manning.
Chatham	Columbia	470	8	24.1		47	14	− 8	31	30	2.04		1.00	15.0	6	13	7	11	n.	Morton R. Tank.
Cooperstown	Otsego	1,250	55	22.2	− 2.4	38	31	− 8	30	22	2.56	− 0.31	1.02	14.0	7	7	10	14	sw.	G. Pomeroy Keese.
Corinth	Saratoga	542	7								2.34		1.68		3					A. M. Hollister.
Cortland	Saratoga	1 129	47	21.6	− 4.6	42	14	− 9	31	26	1.61	− 1.50	0.69	9.6	14	6	8	17	nw.	F. G. Baker.
Cutchogue	Suffolk	32	32	31.2	− 2.1	56	6	4	30	26	3.80	− 1.55	1.12	6.0	6	14	13	4	nw.	Wm. A. Fleet.
De Ruyter	Madison	1,300	6	23.8		45	1	−16	30	36	2.47		0.74	13.6	12	6	6	19	nw.	B. D. Crandall.
Easton	Washington		19																	H. Taber.
Elmira	Chemung	863	27	27.3	− 1.7	45	1	0	30†	24	1.21	− 1.21	0.50		5	2	7	22	nw.	Gerity Bros.
Fort Hunter	Montgomery	280																		C. E. Wing.
Fort Plain	Montgomery	316	5	25.4		41	5†	− 3	31	24	1.79		0.47	12.1	8	10	14	7	w.	Abram Devendorf.
Glens Falls	Warren	340	15	22.5	− 1.3	45	6	−10	31	28	2.61	− 0.79	1.85	16.3	7	9	3	19	w.	Prof. C. L. Williams.
Gloversville	Fulton	850	17	21.2	− 1.7	42	5	−10	30	29	2.42	− 1.41	1.06	23.5	10	10	11	10	w.	W. L. McLean.
Greenfield Center	Saratoga	314	11	22.0	− 2.6	45	5	−15	30	25	1.65	− 1.54	0.80		3	14	11	6	w.	S. E. Darrow.
Greenwich	Washington	425	12	23.7	− 0.2	43	5†	−11	30	21	1.65	− 1.32	0.66	9.8	6	9	16	6	n.	I. V. H. Gill.
Griffin Corners	Delaware	2,260	9	21.3		42	5†	− 9	31	30	3.46		1.48	18.0	6	9	8	14	w.	Sylvenus Kelly.
Hancock	Delaware																			Daniel B. Van Eaten.
Haskinville	Steuben		9								1.46	− 0.65	0.35	9.4	10					W. G. Collins.
Hoosick Falls	Rensselaer	410									2.39		0.82	4.5	5	22	7	2	w.	Sanford L. Cluett
Indian Lake	Hamilton	1,705	10	18.0	− 1.4	45	5	−23	31	46	1.72	− 1.75	0.85	16.6	11	14	5	12	w.	Lester Severie.
Jeffersonville	Sullivan	1,240	6	23.5		49	5	−11	28	37	2.48		1.63	10.0	4	8	17	6	w.	Chas. Wilfert, Jr.
Lake Pleasant	Hamilton																			Willet Lawrence.
Liberty	Sullivan	2,300	23	19.8	− 4.8	42	5†	− 6	29	20	2.54	− 1.40	1.35	13.0	5	19	4	8	nw.	Dr. H. M. King.
Little Falls	Herkimer	924	11	20.2	− 2.8	37°	5†	−10	30	22°	1.68	− 1.54	0.24	13.5	13	9	9	13	w.	O. J. Demster.
Mohonk Lake	Ulster	1,245	13	25.9	− 0.2	47	5	− 9	29	32	4.93	+ 1.28	1.75	11.0	4	15	8	8	nw.	A. K. Smiley.
Morehouseville	Hamilton	1,697	1	18.9		41	5	−24	31	38	3.21		0.72	29.5	16	13	2	16	w.	Theodore C. Remonda.
Mount Hope	Westchester	200	12	29.0	− 1.2	56	6	0	29	32	4.72	+ 0.86	1.90	8.0	6	16	7	8		Wm. A. Cornelius.
Newark Valley	Tioga	825	16								1.93	− 0.50	0.64	10.5	7	3	11	17		M. D. Clinton.
New Berlin	Chenango		2								0.81		0.21		9	5	0	26	w.	Roger Greene.
New Lisbon	Otsego	1,234	19	19.9	− 4.3	42	5†	−19	30	35	1.78	− 1.29	0.60	11.0	9	4	6	21	sw.	G. A. Yates.
New York City	New York	314	84	31.4	− 3.0	54	6	6	30	21	5.00	+ 1.55	2.93	11.4	6	14	8	9	w.	U. S. Weather Bureau.
North Creek	Warren	1,002	1	21.6		46	5	−12	31	38	2.86		2.10	20.2	3	11	13	7	e.	W. G. Kenwell.
Northville	Fulton	742	7								2.13		1.41							P. C. Pickard.
Norwich	Chenango	1,015	3	22.0°		40°	6	−14°	30	24°	1.66		0.46	10.2	11					H. S. Hopkins.
Oneonta	Otsego	1,112	15	23.9	− 4.0	44	5†	− 9	30	33	1.89	− 1.26	0.59	8.5	7	10	5	16	w.	H. W. Lee.
Oxford	Chenango	916	44	23.8	− 3.9	45	14	−17	30	30	2.29	− 0.78	0.38	15.7	13	6	8	17	w.	John P. Davis.
Port Jervis	Orange	470	25	26.9	− 1.3	49	14	− 3	30	31	3.88	+ 0.36	1.63	16.0	6	8	10	13	n.	Prof. John M. Dolph.
Salisbury	Herkimer	1,526	12	20.4	− 0.8	39	3†	−15	31	37	2.29	− 2.04	0.61	15.6	12	6	15	10	w.	Joseph Ryan.
Salisbury Mills	Orange	314	10	27.4		59	6	− 6	31	33	4.12	+ 0.22	2.70	11.0	7	25	2	4	w.	H. P. Ramsdell.
Searsdale	Westchester	200	5	29.5		56	6	4	30†	26	6.40		4.20	18.0	5	19	8	4	nw.	C. H Wilmarth.
Setauket	Suffolk	40	24	32.0	− 2.8	53	7†	6	30	24	4.33	+ 0.36	2.18	4.5	4	19	5	7	w.	Selah B. Strong.
Sherburne	Chenango		2								3.08		0.92	13.2	10	5	2	24	w.	E. B. Collins.
Southampton	Suffolk	36	8	31.1		53	8	6	30	21	4.07		1.70	3.6	5	19	8	4	nw.	W. L. Jagger.
Southeast Reservoir	Putnam	310	14								4.01									Thomas Manning
Spier Falls	Saratoga	400	8	22.2		42	5†	−17	30	35	2.42		0.95	16.0	5	16	9	6	sw.	W. F. Anderson.
Trenton Falls	Oneida	751	6								1.85		0.60		14	4	2	25	w.	C. W. Young.
Tribeshill	Montgomery	268									1.60		0.70	12.0	5	7	2	22	w.	R. S. Marshall.
Utica	Oneida	537	4								2.14		0.30		18					W. E. Young.
Wading River	Suffolk	112	3	30.1		54	8	6	30	27	4.50		1.83	8.1	6				nw.	H. B. Fullerton.
Wappingers Falls	Dutchess	110	19	25.8	− 2.3	47	14	−13	30	30	3.34	− 0.51	1.28	13.0	6	16	11	4	sw.	H. C. Townsend.
Warwick	Orange	538	9								4.30	+ 1.24	1.56	18.0	5					John W. Sly.
Waverly	Tioga	824	27	25.2	− 3.2	45	7	−16	31	28	2.63	− 0.50	1.12	6.1	8	3	12	16	nw.	Hon. J. F. Shoemaker.
West Berne	Albany	936	12	21.6	− 2.3	44	5	−13	31	39	2.30	− 0.14	1.50	23.0	3	7	8	16	nw.	W. J. Haverly.
West Point	Orange	167	60	28.6	− 2.8	52	7	4	30	26	4.68	+ 1.16	3.13	12.0	5	25	4	2	nw.	Maj. Chas. M. Gandy.
Windham	Greene	1,520	10	21.6	− 3.4	43	14	−15	31	33	4.04	+ 0.74	1.94	22.0	5	11	17	3	nw.	A. R. Mott.
Pennsylvania.																				
Altoona	Blair	1,181	21	23.4◊	− 5.6	59◊	5	− 2◊	30	34◊	3.10	+ 0.21	1.64		8					Dr. C. B. Dudley.
Bellefonte	Center	826	8	29.2◊		54◊	4	7◊	30	32◊	1.19		0.75	7.0	2	14	4	13		Fred Kurtz.
Center Hall	Center	1,272	10	25.3	− 4.1	55	4†	3	30	32	3.10	+ 0.07	1.50	10.5	6	8	8	15		S. W. Smith.
Clearfield	Clearfield	1,107	1	26.7◊		58◊	1	1◊	21	47◊	3.54		1.20	11.4	9	11◊	7◊	12◊	w.	Raymond C. Ogden.
Coatesville	Chester	380	21	29.8	− 3.4	61	5	2	30	31	8.50	+ 4.46	4.21	39.3	5	13	12	6	w.	W. T. Gordon.
Drifton	Luzerne	1,633	11	21.4		41	1†	− 5	30	21	3.86		1.45	14.3	11	18	8	5	w.	Eckley B. Coxe, Jr.
Dushore	Sullivan	1,590	11																	Dr. J. D. Benjamin.
Easton	Northampton	325	26																	J. W Colliton.
Emporium	Cameron	1,050	22	25.2	− 4.7	49	5	− 2	30	32	2.45	− 1.05	1.10	8.4	6	5	16	10	w.	T. B. Lloyd.
Ephrata	Lancaster	384	9	27.6	− 3.6	59	5	3	30	29	3.84	+ 0.16	2.17	12.5	4	6	16	9	n.	W. L. Frantz.
Everett	Bedford	1,080	11	26.7	− 3.0	61	5	3	30	36	3.96	+ 0.77	1.83	12.2	7	12	15	4	nw.	B. L. Steckman.
George School	Bucks		2	29.2◊		55◊	4†	2◊	29†	24◊	4.90		1.78	12.7	6	16◊	7◊	6◊	w.	Prof. A. C. Smedley.
Gettysburg	Adams	600	35	29.0	− 2.6	59	5	5	26	28	4.24	+ 0.98	2.90	10.8	8	14	8	9	w.	Col. E. B. Cope.
Gordon	Schuylkill	804	5	24.6◊		52◊	5	− 1◊	28	29◊	4.38		1.82	13.6	9	11	7	13	nw.	Capt. J. G. Johnson.
Hamburg	Berks	380	13	29.0	− 3.6	56	5	5	30	29	3.19	− 0.70	1.80		4	20	7	4	nw.	W. J. Kalbach.
Hanover	York	600	4	31.8		62	5	7	30	31	2.81		1.81	6.5	7	6	20	5	nw.	Dr A. C. Wentz.
Harrisburg	Dauphin	361	21	29.8	− 3.0	56	5	10	29	22	2.98	+ 0.33	1.80	8.5	6	9	10	12	w.	U. S. Weather Bureau.
Huntingdon	Huntingdon	650	21	27.0	− 5.1	56	5	5	21	33	3.73	+ 0.54	2.05	10.8	7	10	7	14	w.	Prof. W. J. Swigart.
Hyndman	Bedford	977	2	27.8		63	5	2	30	36	2.85		2.05	7.0	5	11	7	13	sw.	H. C. Mauk.
Kennett Square	Chester	275	19	30.0	− 3.5	55	5	5	30†	26	6.69	+ 2.82	3.73	24.0	4	16	11	4	nw.	C. C. Hadley.
Lawrenceville	Tioga	1,006	11	26.6	− 0.2	54	2	− 7	30	37	1.75	− 1.02	0.60	5.0	5					C. P. Darling.
Lebanon	Lebanon	458	22	30.2	− 2.0	60	5	8	30	26	3.75	+ 0.10	1.70	9.5	7	12	9	10	w.	G. W. Hayes, C. E.
Le Roy	Bradford	1,400	21	23.8	− 3.6	46	6	− 5	30	22	2.70	− 0.48	0.95	7.6	13	2	6	23	sw.	G. W. T. Warburton.
Lewisburg	Union	450	38	29.2	− 0.4	56	5	3	31	34	4.19	+ 0.98	2.07	8.3	7	5	13	13	w.	Prof. W. G. Owens.
Lock Haven	Clinton	560	21	27.7	− 3.4	51	5	2	30	29	2.86	− 0.45	1.53	6.8	6	4	11	16	w.	Prof J. A. Robb.
Marion	Franklin	640	5	28.6		58	4	5	30	32	3.65		1.90	8.0	5	19	5	7		Hon. C. B. Hege.
Mauch Chunk	Carbon	634	20	27.6	− 2.7	51	5	− 1	31	30	4.76	+ 0.54	2.64	14.2	6	16	7	8	n.	F. C. Wintermute.
Mifflintown	Juniata	445	5	28.0		57	5	7	21	33	2.96		2.00	8.5	8	9	11	11	w.	Wellington Smith.
Milford	Pike	455	6	25.0		50	6	−10	30	30	4.30		2.85	19.0	4	11	14	6	nw.	Mrs. Alla Doughty.
Montrose	Susquehanna	1,658	5	20.6		43	5	− 7	31	27	2.00		0.76	14.0	8					J. R. Beebe.
Mountain House	Fulton	1,950		26.2		60	5	− 1	30	26	2.75		1.93	6.0	4	10	14	7	nw.	T. F. Sloan.
New Germantown	Perry	873	5	29.0		60	5	7	30	33	3.18		2.50	5.0	3	20	2	9	w.	Ed. C. Johnston.
Philadelphia(1)	Philadelphia	117	38	33.3	− 2.4	58	13	10	30	29	5.86	+ 2.82	2.80	22.4	6	14	8	9	nw.	U. S. Weather Bureau.
Philadelphia(2)	Philadelphia	120	18																	John Comly.
Philadelphia(3)	Philadelphia	90	5	30.4◊		56◊	5†	1◊	30	31◊	6.18		2.70	16.0	6					A. C. Davis.
Pocono Lake	Monroe	1,662	7	22.7◊		46◊	14	− 4◊	30	24◊	3.67		1.41	14.0	4	8◊	4◊	17◊	w.	Pocono Lake Ice Co.
Reading	Berks	280	36	30.3	− 2.5	58	5	6	30	29	5.32	+ 1.97	2.71	24.1	6					Franklin Yager.

TABLE 1.—*Climatological data for December, 1909. District No. 1*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Pennsylvania—Cont'd.																				
Scranton	Lackawanna	805	9	27.0	− 2.8	46	6	2	29	20	3.39	+ 0.78	1.49	17.0	10	6	5	20	sw.	U. S. Weather Bureau.
Selinsgrove	Snyder	455	21	29.4	− 1.9	52	5	5	28†	30	2.64	− 0.65	1.48	5.3	7	1	22	8	nw.	J. M. Boyer, C. E.
State College	Center	1,191	21	24.5*	− 5.6	54	5	3*	30	24	2.92	0.00	1.47	11.8	10				w.	Prof. Wm. Frear.
Towanda	Bradford	754	14	26.1	− 2.7	45	6	− 3	30†	27	2.08	− 0.60	0.80	6.1	8	3	2	26	nw.	Hiram E. Bull, C. E.
Wellsboro	Tioga	1,327	32	25.2	− 3.7	56	5	− 9	30	30	1.96	− 1.46	1.18	6.0	4	5	14	12	w.	O. L. White.
West Chester	Chester	455	55	29.6	− 3.7	58	5	4	30	28	4.51	+ 0.54	2.76	22.5	6	9	11	11	w.	J. C. Green, D. D. S.
Wilkes-Barre	Luzerne	575	24	28.1	− 2.6	48	13	1	30	23	3.16	− 0.30		8.0	7	6	8	17		A. W. Betterly.
Williamsport	Lycoming	530	19	28.2	− 2.1	49	5†	4	30	25	3.31	+ 0.34	2.37	5.0	3	8	8	15	nw.	Henry H. Guise.
New Jersey.																				
Asbury Park	Monmouth	22	21	31.4	− 3.9	54	8	4	30	21	4.38	+ 0.68	2.55	2.0	4	16	5	10	w.	B. H. Obert.
Atlantic City	Atlantic	16	36	31.6	− 4.8	57	5	7	30	25	3.88	+ 0.14	2.21	3.0	6	12	8	11	nw.	U. S. Weather Bureau.
Bayonne	Hudson	50	19	30.8	− 3.0	54	6	5	30	23	3.80	+ 0.22	1.18	11.5	5	16	5	10	nw.	J. H. Eadie.
Belvidere	Warren	289	19	27.4	− 3.2	53	5	− 1	28	34	4.97	+ 0.98	1.70	16.5	6	15	6	10		S. J. Hixson.
Bergen Point	Hudson	37	12	30.6	− 2.2	54	5†	5	30	22	4.80	+ 0.47	1.62	13.5	6	13	10	8	nw.	Dr. W. H. Mitchell.
Boonton	Morris	413	19										2.25		5				nw.	F. G. McIntosh.
Bridgeton	Cumberland	30	34	31.2	− 5.6	59	5	2	30	30	3.90	+ 0.11	1.75	15.0	6	15	6	10	nw.	H. A. Jorden.
Burlington	Burlington	12	25								5.47	+ 1.21	2.38	20.0	6				nw.	D. S. B. McCoy.
Canton	Salem	24	15								4.23	+ 0.08	2.53	13.0	6	12	9	10		J. H. Maskell.
Cape May City	Cape May	17	25	33.2	− 4.8	53	5†	12	30	19	4.55	+ 0.77	2.48	6.6	9	15	10	6	nw.	U. S. Weather Bureau.
Cape May C. H.	Cape May	19	22																	L. T. Garretson.
Charlotteburg	Passaic	719	17	27.0	− 3.1	50	6†	1	30	25	4.98	+ 0.46	3.03	17.0	4	14	8	9	nw.	G. S. Briggs.
Chatham	Morris	234	7										3.15		5				w.	M. A. Butler.
Clayton	Gloucester	126	18	30.4	− 3.7	56	14	3	30	27	4.22	+ 0.31	2.48	13.0	4	14	9	8	nw.	W. T. Farley.
College Farm	Middlesex	100	14	29.0	− 3.3	56	14	− 2	30	27	5.47	+ 1.84	4.03	11.4	4	15	5	11	nw.	G. B. Thrasher.
Culver's Lake	Sussex	848	8								3.55		1.19	16.3	7	14	7	10	w.	B. E. Riker.
Dover	Morris	575	25	26.6	− 3.7	50	6	2	30	23	5.35	+ 1.28	3.30	18.0	4	14	10	7		W. C. Harris.
Elizabeth	Union	33	30	30.8	− 2.7	54	6	5	30	22	3.76	− 0.03	1.82	16.0	4	14	7	10	w.	W. M. Oliver.
Englewood	Bergen	135	23																	W. C. Tucker.
Flemington	Hunterdon	187	21	29.5	− 2.3	54	14	2	30	29	3.77	+ 0.10	2.45	10.0	4	15	8	8	w.	H. E. Deats.
Freehold	Monmouth	187	28																	F. T. Cooper.
Friesburg	Salem	100	18	30.4	− 3.9	57	5†	2	30	29	4.45	+ 1.02	2.67	13.4	6	15	9	7	w.	H. C. Perry.
Haddonfield	Camden	75	1	30.5		57	13†	4	29†	29	4.95		2.71	17.8	5	15	8	8	nw.	C. F. Richardson.
Hammonton	Atlantic	80	12								5.38	+ 2.27	2.14	14.7	4					Orville Bassett.
Hightstown	Mercer	85	18	29.8	− 3.4	55	14	− 1	31	28	4.10	+ 0.48	2.19	10.5	4	16	7	8	nw.	Ernst Wenger.
Imlaystown	Monmouth	106	23	29.3	− 5.5	56	14	0	31	27	5.25	+ 1.71	2.86	12.5	5	15	7	9	nw.	Dr. F. C. Price
Indian Mills	Burlington	76	9	29.4		55	5†	3	30	29	4.93		2.15	13.0	5	16	8	7	w.	James Armstrong.
Jersey City	Hudson	15	4	31.6		54	6	5	30	22	4.60		2.75	11.4	5	15	9	7	w.	S. K. Pearson, jr.
Lakewood	Ocean	54	8																	H. R. Major.
Lambertville	Hunterdon	95	23	29.6	− 3.9	55	14	2	31	31	4.60	+ 0.75	2.81	19.0	4	14	7	10	nw.	W. R. Bowne.
Layton	Sussex	550	10	24.4	− 4.0	50	14	−15	30	32	3.81	− 0.68	1.79	17.5	5	16	7	8	w.	W. C. Hursh.
Little Falls	Passaic	175	7								4.69		3.25	9.0	6				w.	F. Fearns.
Long Branch	Monmouth	30	1																	B. B. Bobbitt.
Mahwah	Bergen	312	7										2.72		5				nw.	M. F. Brooks.
Moorestown	Burlington	71	47	30.4	− 2.8	56	14	4	30	22	5.02	+ 1.47	2.68	21.6	6	14	10	7	nw.	J. C. Beans.
Newark	Essex	140	65	31.3	− 2.0	54	5†	4	30	22	3.78	− 0.01	2.12	8.9	6	14	6	11	nw.	Prof. Wm. Wiener.
New Brunswick	Middlesex	61	56	29.5†	− 3.7	52	5†	2	30	32				14.0	4				w.	W. T. Woerner.
Newton	Sussex	678	30	26.8	− 2.6	54	6	− 2	30	27	3.99	+ 0.30	2.15	16.0	4	14	5	12	nw.	B. H. Kienbaum.
Northfield	Atlantic		1								4.14		2.38	2.4	7					W. L. Flick.
Oceanic	Monmouth	16	23	31.8	− 4.0	53	6	5	30	23	4.42	+ 0.40	2.76	3.0	4	15	8	8	nw.	Prof. C. E. Dietz.
Paterson	Passaic	110	39	30.4	− 2.6	56	6	4	30	24	4.73	+ 0.63	1.68	15.2	5	12	10	9	nw.	H. A. Probert.
Phillipsburg	Warren	196	7	28.4		54	5†	3	30	28	4.18		2.15	15.6	7	16	6	9	w.	D. W. Smith.
Plainfield	Union	100	22	29.8	− 2.4	55	5	2	30	28	5.51	+ 1.40	2.98	21.4	4	13	9	9	w.	John Neagle.
Pleasantville	Atlantic	26	11										2.54		6					L. Van Gilder.
Pompton Plains	Morris	195	7																	M. S. Taylor.
Port Norris	Cumberland	8	1																	J. H. Barraclough.
Rancocas	Burlington	68	46								5.06	+ 1.39	2.50	14.7	5	14	4	13	nw.	Spencer Haines.
Rivervale	Bergen	70	18	27.0*	− 3.5	52	6	− 3	28	36	3.85	− 0.13	2.10	13.0	5	15	6	10	nw.	G. S. M. Holdrum.
Runyon	Middlesex	18	3								4.16		2.77	10.7	5					J. H. Cottrell.
Somerville	Somerset	76	30	29.0	− 3.4	55	14	0	31	28	4.25	+ 0.54	2.80	14.0	4	15	6	10	w.	P. Hardcastle.
South Orange	Essex	200	40	29.6	− 2.5	53	6	4	30	21	4.02	+ 0.20	2.66	8.0	4	15	8	8	nw.	Dr. W. J. Chandler
Sussex	Sussex	442	19	27.1	− 2.6	50	5†	− 1	30	27	3.85	+ 0.12	1.65	17.0	5	15	5	11	w.	Prof. W. H. Seeley.
Trenton	Mercer	60	40	34.4*	− 2.2	59	13†	4	30	29	3.90	+ 0.36	2.30	12.0	4	11	11	9	nw.	E. R. Cook.
Tuckerton	Ocean	23	16	30.8	− 3.4	56	6	5	30	30	4.54	+ 0.14	2.39	5.0	8	13	9	9	nw.	F. R. Austin.
Vineland	Cumberland	118	42	30.2	− 4.3	60	5	1	30	30	4.41	+ 0.58	2.41	9.5	6	15	7	9	nw.	Alfred Chalmers.
Woodbine	Cape May	43	18	32.0	− 3.4	57	5	6	30	30				5.0	6	15	7	9	w.	Prof. R. D. Maltby.
West Virginia.																				
Bayard	Grant	2 500	6	23.7		65	5	− 3	30	40	3.74		1.06	23.2	14	10	3	18	w.	Solomon Clark.
Burlington	Mineral	875	13	29.2	− 3.4	60	5	5	30	34	1.95	− 0.86		4.0	3	10	16	5	nw.	J. W. Vandiver.
Franklin	Pendleton		3																	A. A. Martin.
Lost City	Hardy		3	30.4		60	5	2	30	33	2.36		1.54	6.5	3	11	11	9	w.	B. D. Hinegardner.
Martinsburg	Berkeley	435	18	29.6	− 3.5	57	5	6	30	28	2.83	+ 0.26		6.0	4	16	7	8	nw.	G. W. Van Metre, C. E.
Moorefield	Hardy	900	13	28.0	− 5.7	67	5	2	30	46	1.48	− 0.86	1.01	6.0	3	9	16	6	nw.	John C. Fisher.
Romney	Hampshire	824	13	27.8	− 4.9	58	5	5	30	36	1.86	− 0.62	1.03	1.5	5	14	7	10	w.	Jno. C. Linthicum.
Upper Tract	Pendleton	1,230	11	29.4	− 4.9	70	5	5	30	40	2.35	− 0.30	1.65	4.5	3	8	16	7	n.	J. M. Mallow.
Maryland.																				
Annapolis	Anne Arundel	45	31	32.5	− 4.5	64	5	9	30	25	5.40	+ 1.61	2.90	10.5	5	18	7	6	nw.	W. M. Abbott.
Bachman's Valley	Carroll	860	16																	J. M. Myers.
Baltimore	Baltimore	115	39	33.2	− 3.7	62	5	9	30	26	4.62	+ 1.54	3.16	10.9	7	10	17	4	nw.	U. S. Weather Bureau.
Cambridge	Dorchester	25	11	34.2	− 3.6	60	5	10	30	31	3.80	− 0.10	1.80	8.6	8	19	4	8	nw.	T. E. Keenan.
Cheltenham	Prince Georges	230	9	32.1		64	5	6	30	40	3.73		1.92	7.0	6	18	4	9	nw.	J. E. Burbank.
Chester	Queen Annes																			L. M. Kelly.
Chestertown	Kent	80	24	32.2	− 3.1	56	5	9	30	25	4.19	+ 0.73	1.72	16.0	9	20	7	4	nw.	Hon. M. de K. Smith.
Chewsville	Washington	530	12	28.8	− 3.0	61	5	2	30	33	2.34	− 0.47	1.66	8.0	4	9	18	4	nw.	D. Paul Oswald.
Clear Spring	Washington	650	12	28.4	− 2.6	58	5	3	30	24	4.01	+ 0.28	2.90	8.5	6	12	13	6	nw.	W. W. Frantz.
Coleman	Kent	80	11	32.4		66	5	8	30	24	5.47	+ 1.02	3.42	16.0	4	21	3	7	nw.	Jas. H. Harris.
College Park	Prince Georges	170	19	31.2	− 4.4	66	5	5	28†	37	2.90	− 0.08	1.25	7.5	5	17	2	12	nw.	Prof. H. J. Patterson.
Cumberland	Allegany	700	35								2.81	+ 0.36	1.60	5.0	9					J. W. Frantz.
Darlington	Harford	300	17	29.1	− 4.5	57	5	3	30	25	5.63	+ 1.75	2.50	19.0	6	17	9	5	nw.	Prof. A. F. Galbreath.
Denton	Caroline	42	14	30.9		59	5	7	28	31	3.15		0.87	8.0	8	21	5	5	nw.	H. B. Mason.
Easton	Talbot	35	18	32.5	− 4.0	60	14	9	30	29	3.01	− 0.09	1.48	5.5	5	21	6	4	nw.	Henry Shreve.
Emmitsburg	Frederick	720	36	32.3†	− 0.8	60	5	11†	10†	24†	4.41	+ 1.17	3.13	10.5	3	21	4	6	w.	Jno. H. Eckenrode.
Fallston	Harford	450	36	30.1	− 3.6	61	5	3	30	27	5.14	+ 1.42	2.69	13.0	7	6	21	4	w.	J. H. Curtiss.
Frederick	Frederick	275	32	30.8	− 4.0	60	5	7	30	29	4.56	+ 1.48	2.32	9.5	6	19	8	4	nw.	Henry Trail
Frostburg	Allegany	1,929	8	25.4		53	1†	− 1	30	45	3.48		0.90	8.6	11	16	8	7		L. B. Abbott.
Great Falls	Montgomery	200	18	30.4	− 3.7	64	5	6	30	34	3.10	0.00	1.92	7.0	7	16	13	2	nw.	J. W. Bissett.
Green Spring Furnace	Washington	450	17	29.6	− 4.6	59	5	6	30	33	2.58	− 0.29	1.57	6.5	4	16	4	11	w.	E. G. Kinsell.
Keedysville	Washington	400	5	30.6		64	5	5	30	36	2.70		1.68	7.5	5	19	5	7	nw.	J. A. Miller.

TABLE 1.—*Climatological data for December, 1909. District No. 1*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Maryland—Cont'd.																				
Laurel	Prince George	150	15	30.0	− 4.2	65	5	5	28	36	4.47	+ 0.77	2.67	10.5	7	13	13	5		Dr. T. M. Baldwin.
Monrovia	Frederick	630	22	30.3	− 3.5	60	5	4	30	26	2.78	− 0.29	1.34	8.6	6	20	5	6	nw.	J. H. Lawson.
Ocean City	Worcester	10	....																	J. Alan Massey.
Pocomoke City	Worcester	37	16	36.0	− 4.7	60	7†	13	30	28	3.37	− 0.05	2.02	2.8	5	21	5	5	nw.	R. M. Stevenson.
Porto Bello	St. Marys	38	4	35.4		68	6	10	30	35	3.00		1.60		2	20	6	5	nw.	Alpheus Hyatt.
Princess Anne	Somerset	17	16	32.4	− 4.6	61	7	11	30	37	2.51	− 0.59	1.25	2.4	6	6	18	7	nw.	Jas. R. Stewart.
Rockville	Montgomery	421	2	31.5		65	5	4	30	29	3.16		2.08	10.0	6	20	6	5		Dr. Geo. E. Lewis.
Salisbury	Wicomico	23	4	32.6		61	5†	9	21†	39	3.88		1.55	9.2	9	12	14	5	nw.	W. E. Downing.
Sanatorium	Frederick	....	1	27.2		60	5	0	30	27	3.77		2.46	10.2	7	14	2	15	w.	Dr. W. M. Garrison.
Solomons	Calvert	20	18	34.7	− 3.5	58	4	11	30	21	1.72	− 1.10	0.77	2.5	4	9	12	10	nw.	Dr. W. H. Marsh.
Sudlersville	Queen Annes	65	10	31.0	− 4.5	58	5†	4	30	28	5.46	+ 1.39	2.00	25.6	9	17	7	7	w.	Jas. E. Higman.
Takoma Park	Montgomery	320	11	31.0	− 2.2	65	5	3	30	23	3.54	− 0.68	2.30	6.7	4	7	14	10		L. M. Mooers.
Taneytown	Carroll	450	10	29.0	− 4.0	62	5	5	28†	37	1.79	− 1.17	0.84	5.6	6	23	3	5	nw.	R. A. Nusbaum.
Towson	Baltimore	475	1	30.6		61	5	5	30	28	4.65		2.40	16.5	8	21	0	10	nw.	C. W. Treadwell.
Van Bibber	Harford	100	12																	H. A. Wroth.
Westernport	Allegany	1,000	15	28.4	− 3.2	60	5	3	30	39	1.74	− 0.55	0.96	4.7	5					Prof O. H. Bruce.
Woodstock	Baltimore	392	35	32.1	− 1.7	58	5†	7	30	32	3.31	+ 0.29	1.56	5.0	5	19	10	2	w.	Rev. A. J. Donlon.
District of Columbia.																				
Washington	District of Columbia	112	39	31.8	− 4.3	66	5	8	30	30	3.39	+ 0.23	2.43	5.2	8	14	10	7	nw.	U. S. Weather Bureau.
Delaware.																				
Delaware City	New Castle	10	7	31.4		57	5	3	30	22	3.31		1.10	17.0	8	23	4	4	nw.	H. Morton Price.
Dover	Kent	40	21	31.8	− 4.5	62	5	3	30	30	4.84	+ 1.52	2.40	25.0	4	19	5	7	w.	Thos. F. Dunn.
Milford	Kent	20	25	34.5	− 3.1	60	14	6	30	28	5.19	+ 1.55	2.30	25.5	7	21	8	2	nw.	C. J. Holzmueller.
Millsboro	Sussex	20	17	32.6	− 4.2	61	5	10	21†	31	3.35	− 0.67	1.73	4.0	5	21	0	10	nw.	Rev. L. W. Wells.
Seaford	Sussex	40	16	32.0	− 4.6	58	8	9	30†	34	2.59	− 0.80	0.91	5.0	7	17	8	6	nw.	E. B. Brown.
Virginia.																				
Culpeper	Culpeper	450	....	30.0		58	4†	0	30	32	3.58		2.60	7.0	3	18	9	4	nw.	Col. H. C. Burrows.
Dale Enterprise	Rockingham	1,350	30	28.6	− 6.8	66	5	− 1	31	40	2.73	+ 0.03	1.50	6.0	4	13	13	5	nw.	Rev. L. J. Heatwole.
Doswell	Hanover	134	8	34.2†		67†	4	1†	30	39†					3	17†	5†	3†	s.†	R. F. & P. R. R.
Fredericksburg	Spottsylvania	100	20	32.2	− 4.7	64	5	3	31	33	3.46	− 0.02	2.21	6.0	5	18	7	6	nw.	S. G. Howison.
Lincoln	Loudon	500	8	29.6		68	5	2	30	40	3.11		1.87	8.0	3	10	17	4	nw.	Dr. George Roberts.
Mt. Weather	Loudon	1,726	5	26.4		56	5	− 1	30	23	2.93		1.97	9.1	7	13	11	7	nw.	U. S. Weather Bureau.
Nokesville (near)	Fauquier	350	5	32.7		67	1	6	30	39	2.50		2.00	5.0	2	16	5	10		Andrew Low.
Quantico	Prince William	16	12	32.0		60	4	4	30	40	2.87		2.04	4.5	4	21	0	10	nw.	R. F. & P. R. R.
Shenandoah	Page	937	8								1.99		1.51	3.3	3	23	3	5	sw.	N. & W. Ry.
Staunton	Augusta	1,380	17	31.2	− 6.5	66	5	7	30	33	2.99	+ 0.51	1.44	4.5	4	17	9	5	w.	Western State Hospital.
Stephens City	Frederick	710	17	29.6	− 5.3	59	4	2	30	41	2.23	− 0.68	1.43	6.0	4	26	0	5	w.	B. T. Argenbright.
Warsaw	Richmond	160	17	31.8	− 6.4	65	5	4	31	25	2.75	+ 0.01	1.40	5.0	6	11	16	4	n.	C. H. Constable.
Woodstock	Shenandoah	927	13	30.0	− 4.6	65	5	2	31	46	2.16	− 0.22	1.26	8.5	3	17	9	5	w.	Miss A. G. Miley.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Separate dates of fall not recorded.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
‖§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for December, 1909. District No. 1. North Atlantic States.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Maine.																																	
Bar Harbor	Coast	.20	.05		T.			T.	.10	T.					.83	T.				T.				T.			.80	.05					2.03
Cornish	Saco		T.					.64						.20	1.96								T.	.05			.60	.20		T.			3.65
Danforth	Penobscot	.05	.13		.10	T.			.56		T.				.65							T.	.25				.20	.40					2.34
Debsconeag	...do																																
Eastport	Coast	.27			.12	.03	T.	.04	.36	.02	T.				.42			.04									.35						1.69
Fairfield	Kennebec	.08							.46						.23												*	.71					1.48
Farmington	...do		.02					.10	.60					T.	2.08								T.	.02			.20						3.02
Gardiner	...do		.02						.51						1.26	.01								.02			.03	.23					2.02
Greenville	...do	.02	.02	.06	T.		T.	.20	.10		T.		.04	.20	1.04	.05	T.	T.	T.	T.	T.		.34	.07			.45		T.	T.			2.59
Houlton	St. John			.25				.25						.25									.50				.80						2.05
Lewiston	Androscoggin		.03					.09	.69					.16	1.62								T.	T.			.40			T.			2.99
Madison	Kennebec		T.						.58						1.68								*	.06			.33						2.65
Millinocket	Penobscot		T.	.07		.07			.40		T.				.19	.90		T.	T.	T.			.02	.12			.30						2.07
North Bridgeton	Saco		.02						.70						1.82								.01				.40						2.95
Orono	Penobscot	.10			.01				.70		T.				.64					T.			.03				.50						1.98
Oquossoc	Androscoggin								.50						1.00								.25				.20						1.95
Patten	Penobscot	T.	T.		T.				.40						.60							.15	.40				.40						1.95
Portland	Coast		.02					.25	.29					.20	.59								T.			T.	.71			T.			2.06
Rumford Falls	Androscoggin		T.					.27	.23					.43	1.10								.01				.09			T.			2.13
The Forks	Kennebec						*	.40						*	.90								.40				.35						2.05
Van Buren	St. John																																
Winslow	Kennebec	.02							.55						.65												.26						1.48
New Hampshire.																																	
Alstead Center	Connecticut							.24	.13					.23	.54	T.			T.				T.	.02	T.		.51	.02		T.			1.69
Benton	...do							T.	T.		T.	T.			.42		T.		T.	.03				.11				.22	T.				0.78
Bethlehem	...do							T.	.15		.10	T.	T.	T.	.06	T.	.05		.03	.05		T.	.10	.40			.20	T.	T.	T.			1.14
Brookline	Merrimac		T.					.45						2.15									T.		T.		1.80						4.40
Concord	...do		T.					.49	.08					.43	1.13								T.		.03	.05	.35			T.			2.56
Durham	...do							.58							1.93												.38			.02			2.91
Franklin	...do		T.	T.				.12	.42					.30	1.52				T.	T.				T.	T.		.33	T.			T.		2.69
Grafton	...do							T.	.50					*	1.03								.07			*	.60		.10				2.27
Hanover	Connecticut							.26	.12					.26	.32	.01		T.	T.	T.			T.	.03	T.	*	.90		T.				1.90
Keene	...do							.16	.28					.26	.91	T.			T.	T.				.03	T.		1.00		T.				2.64
Nashua	Merrimac		T.	T.				.43	.04					.78	.89								T.			.18	1.92						4.24
Newton	Merrimac		T.					.69						.21	1.55				T.				T.				1.20		T.				3.56
Plymouth	...do							T.	.61					.11	.77		.03		T.				T.	T.	T.		.06		T.				1.58
West Ossipee	Saco																																
Vermont.																																	
Bloomfield	Connecticut								.32		.04				.32		.03		.04				.05	.08			.03	.02					0.93
Cavendish	...do							*	.41		T.				1.89	T.		T.	T.	T.					T.	T.	.33		T.	T.			2.63
Chelsea	...do							.30						.35	.40											.08	.18						1.31
Jacksonville	...do							.10	.20	.01		T.		.10	.05		T.	.01	.01			.07	.01	.01	.15			.01	.05	.10			0.88
Manchester	Hudson							T.						.04	.37				.40				T.	.07		.20	.60						1.61
St. Johnsbury	Connecticut								.24		T.			.13	.49		T.						T.				.11	T.	T.	.05			1.09
Woodstock	...do							.43						1.85		T.		T.					T.				.47			T.			2.75
Massachusetts.																																	
Amherst	Connecticut							.36	T.					1.15	.42		T.						T.			.01	.99						2.95
Ashland	Merrimac							.53						*	1.33			.01					.01			*	2.13						4.01
Bakers Bridge	...do								.59						1.21									.73	.23								2.76
Bedford	...do		T.					T.	.58					.13	1.12									T.	T.	1.25			T.				3.08
Blue Hill	Coast		.03	T.				.01	.35					.12	1.29				T.					T.	.01	.05	1.92		T.	.02			3.80
Boston	...do		T.					.34	.06					.24	.84								T.		T.	.17	1.54		T.				3.19
Chestnut Hill	...do								.57					1.55													2.27						4.39
Clinton	Merrimac			.01				*	.45	T.				*	2.03				T.				T.		T.	*	2.05						4.54
Concord	...do		T.	T.				T.	.56					.19	1.09									.01	T.	.05	1.20	.03	T.				3.13
Fall River	Coast		.02	T.				.45						.50	.88										.01	.20	1.20						3.26
Fitchburg	Merrimac		T.					.19	.15					.45	1.50								T.	T.		.04	1.68	T.					4.01
Framingham	...do							.53						*	1.35												2.06						3.94
Haverhill	...do		T.	T.					.62					.06	1.24									T.	T.		1.89	.03		.01			3.85
Hingham	Coast	T.	T.	T.				.37							1.22		T.							T.	T.		1.36		T.				2.95
Hyannis	...do		.12						.55						.47				.02								1.46			.04			2.66
Jefferson	Merrimac							.36						*	1.96											*	2.09						4.41
Lake Cochituate	...do							.53						1.32									T.				2.25						4.10
Lawrence	...do		T.	T.				*	.56					*	1.76								T.		T.	*	1.36		T.				3.68
Leominster	...do		T.	T.				.29	.08					.49	1.38	T.							T.			.05	1.50						3.79
Lowell	...do							.57						*	1.55												1.94			.02			4.08
Middleboro	Coast		.28						.43														.01			*	2.56			T.			3.28
Monson	Connecticut							.30	.05					.50	.65			T.								.05	.80	T.					2.35
Nantucket	Coast	.02	.08					.10	.06					.19	.23		T.	T.	.02				T.	T.		.25	.89	T.		.01	T.		1.85
New Bedford	...do																																
Norfolk	...do		.07	T.				.05	.32					T.	1.03					T.					T.		1.85		T.				3.32
Northampton	Connecticut							.31						.42	2.12								T.			T.	.92						3.77
Plymouth	Coast																																
Princeton	Merrimac							*	.30					*	1.69											*	1.85						3.84
Provincetown	Coast	T.	.16						.28						.47									.05			1.90			.39			3.06
Rockport	Coast		.10						1.00						1.07												2.80						4.97
Rutland	Connecticut		T.					*	.33					2.45									.03			.83	.26						3.90
Salem	Coast																																
Somerset	Coast		.03					.31						1.11										T.	T.	*	1.08						2.53
Spot Pond	Coast							.60						*	1.43								.01			*	1.91						3.95
South Egremont	Housatonic							.30						.12	.50	.80							.15			1.10	.50						3.47
Sterling	Merrimac							*	.37					*	1.92											*	1.80						4.09
Taunton	Coast			T.				*	.59					*	1.64				T.					T.	T.	*	1.66			T.			3.89
Turners Falls	Connecticut							*	.36					*	1.80			T.	T.				T.					.36						2.52
Westboro	Merrimac		T.						.50					*	1.75				.05				T.				1.70						4.00
Williamstown	Hudson							.19	T.					.41	.15		.04	T.	.02	T.			T.	.02		.20	.67		T.	T.			1.70
Winchendon	Connecticut							.04	.34					.55	.64									.05			.85						2.47
Worcester	Coast		T.	.01				.19	.33		T.			.61	.98	.01			T.				T.	T.	T.	.24	.95			T.		?	3.32
Rhode Island.																																	
Block Island	Coast		T.				.43	.01						.41	.91											.48	.86	T.		T.			3.10
Bristol	...do							.42						*	1.12											*	1.69						3.23
Kingston	...do		T.					.75						.47	1.47											.25	1.10						4.04
Narragansett Pier	...do		T.					.25	.22					.82	.50				T.					T.		.16	.69			.01			2.65
Pawtucket	...do			T.				*	.58					*	1.47			T.					T.		T.	1.88							3.93
Providence	...do		T.	T.				.40	.01					.56	.75			T.					T.	T.	T.	.13	.85						2.70
Connecticut.																																	
Bridgeport	Coast							.65	.22					1.33	1.04				T.					T.		.33	.86						4.43
Canton	Connecticut							.33						*	3.06											*	1.75						5.14
Colchester	Coast							*	.68					*	2.30									T.		*	1.40						4.38
Cream Hill	Housatonic							T.						1.17									.15			.25	1.00						2.59
Danielson	Coast							.63						1.67									T.			*	1.50						3.80
Falls Village	Housatonic							.26						1.20	.60			T.					.08			.30	1.00						3.44
Farmington	Connecticut																																
Hartford	Connecticut							.34						1.03	.26			T.					T.	T.		.44	.76						2.83

TABLE 2.—*Daily precipitation for December, 1909. District No. 1*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Connecticut—Cont'd.																																	
Hawleyville	Housatonic													.30	3.08											.35							3.73
Lake Konomoc	Coast								.91					.45	1.37											1.95							4.88
New Haven	do							.89						1.79	.27			T.					T.			.70	1.05						4.70
New London	do							T.	.57					.60	1.31			T.					T.			T.	.50						2.98
North Grosvenordale	do							.65						1.00					T.					T.	T.		1.06						2.71
Norwalk	do							.67						*	2.31											*	.60						3.58
Southington	do							T.	.40					.30	2.00											.25	.90	T.					3.75
South Manchester	Connecticut													1.80												*	1.10						2.90
Storrs	Coast								.46					2.26													1.10						3.82
Torrington	Housatonic							°	.28					*	1.80				T.					.01		*	.70						2.79
Voluntown	Coast								.58					.15	2.10			T.								T.	.62						3.45
Wallingford	do							.60					.04	2.19									T.			2.12	.04						4.99
Waterbury	Housatonic							.39						*	2.79			T.					T.			*	1.65						4.83
West Simsbury	Connecticut							.32						*	2.43								T.			*	1.25						4.00
New York.																																	
Addison	Susquehanna							.24	T.	T.	T.	T.	T.	.37	.48	T.	T.	T.		T.			T.	.02		.21	.28	T.					1.60
Albany	Hudson							.17	T.		T.		T.	1.00	.49	T.	T.	T.	.02	T.		T.	T.			.28	.40	T.		T.			2.36
Amsterdam	Mohawk							T.	T.		T.		*	1.50						T.			T.			*	.50						2.00
Athens	Hudson				T.			.26					T.	1.36	.34	T.			T.				T.	T.		.14	.52						2.62
Ballston Lake	Hudson							.17	.08	T.	T.		T.	*	1.53	T.	T.		.02	T.		T.	T.			*	.80	T.		T.			2.60
Bedford	Coast							.22						.90	2.23											.11	.40						3.86
Binghamton	Susquehanna							.11	T.	T.	T.	T.		.57	.65	T.		T.	T.	T.			T.	T.	T.	.46	.28	T.		T.	.01		1.48
Bouckville	Susquehanna				T.			.14	.10		.05			.40	.64	.10	.05		.15				.35	.30		.25	.40						2.93
Boyd's Corners	Hudson																																4.06
Carmel‖	do							.51						.07	2.27											*	1.21						4.06
Chatham	do								.16				T.	.28	.55	T.	T.		T.	T.				T.		.04	1.00	.01					2.04
Cooperstown	Susquehanna							.32						1.02			.05		.05				.20			.12	.80						2.56
Corinth‖	Hudson								.55						1.68													.11					2.34
Cortland	Susquehanna				T.			.08	.01	.01		T.		.20	.60	.04	.03		.05	.01	T.		.16		.03		.35		T.	.02	.02		1.61
Cutchogue	Coast							.15	.53					.92	1.12											.20	.88						3.80
De Ruyter	Susquehanna				T.			.17	.09		T.		*	.28	.74	.06		*	.10		T.		.18	.12	.16	.08	.48	.01	T.		T.		2.47
Easton	Hudson																																
Elmira	Susquehanna							.07					.50	.40												.19	.05						1.21
Fort Hunter‖	Mohawk																																
Fort Plain	do				T.			.21	T.	T.	.01			.28	.47		.11		.24	T.			T.	T.		.22	.25	T.	T.	T.			1.79
Glens Falls	Hudson							.25	.20					.95	.90											.05	.21		*	.05			2.61
Gloversville	Mohawk							.08	.04	T.	.25			1.06	T.	.32	T.	T.	.08	.06		T.	.08			.05	.40	T.	T.	T.			2.42
Greenfield Center	Hudson							.70						.80													.15						1.65
Greenwich	do							.24	.15				T.	.66	.35								T.		T.	.02	.23			T.			1.65
Griffin Corners	Delaware							.10	.15					.73	1.48											.20	.80						3.46
Hancock‖	do																																
Haskinville	Susquehanna							.05						.32	.15	.10	.05	T.	T.		.10		.14	T.		.15	*	.35		.05			1.46
Hoosick Falls‖	Hudson								.82						.71	T.	T.	T.						.11		.23	.52						2.39
Indian Lake	do							.03	.10		.03			.40	.85	.07	.02						.03	.04		.05	.10						1.72
Jeffersonville	Delaware							.38			T.	T.		1.63		T.	T.	T.	T.				T.	.04		T.	.43	T.			T.		2.48
Lake Pleasant	Hudson																																
Liberty	Delaware							T.						1.35			.65				.02		.02		T.		1.00						2.44
Little Falls	Mohawk							.16	.04	.04	.10			.14	.22		T.	.05	.23	.08			.16	.06		.12		.18		T.			1.68
Mohonk Lake	Hudson								.46					1.40	1.75												1.38						4.93
Moreshouseville	Mohawk							.22	.20	.15	.15			.72	.35	.15	.30		.32		.10	.10	.10			.10		.05	.05	.15			3.21
Mount Hope	Coast							.22	.40					1.60	1.90											.20	.40						4.72
Newark Valley	Susquehanna							.36						.64	.26	T.		T.					T.	.03		.40	.22	.02					1.93
New Berlin‖	do							*	.15	T.		T.	T.	.10	.18		.01	*	.02	T.	T.			.06	.04		.21	.04	T.				0.81
New Lisbon	do							.26	.02					.60	.36				.03				.10	.04		.24	.13						1.78
New York City	Coast							.56					.02	2.85	.09								T.			1.30	.18	T.					5.00
North Creek	Hudson							.50						2.10													.26						2.86
Northville‖	do							.43						.13	1.41			.02									.14						2.13
Norwich	Susquehanna						.06	.02						.11	T.		.46	.03	.03	.12	T.		T.	T.	T.	.42	.19	.11	.12				1.66
Oneonta	do							.23						.59	.36				.06				.05	.14		.19	.27						1.89
Oxford	do							.20	.05		T.	.02		.38	.34	.18	T.	T.	.20		T.		.10	.08	.08	.30	.28	.08		T.	T.		2.29
Port Jervis	Delaware							.37						.88	1.63											.13	.82	.05					3.88
Salisbury	Mohawk							.12	.30		.14			.61	.22	.18	.21		.24			.04	.08			.14		.01					2.29
Salisbury Mills	Hudson							*	.32					*	2.70											*	*	1.10					4.12
Scarsdale	Coast							T.	.60					.20	4.00										.20	1.40							6.40
Setauket	do							.65	T.					2.18				T.								.44	1.06	T.					4.33
Sherbourne‖	Susquehanna							*	.92			T.		.10	.84	T.	.10			.19			*	.30	.10	*	.37	.15	.10				3.08
Southampton	Coast		T.	T.				T.						.44	1.31								T.			.05	1.70						4.07
Southeast Reservoir‖	Hudson																																4.01
Spier Falls	Hudson							T.	.50					.95	.70											.05	.22						2.42
Trenton Falls‖	Mohawk					T.			.37	T.	.04	.01		.05	.60	.16	.05	.02	.05	.18	T.		.01	.01	T.		.25	T.	.05	T.			1.85
Tribeshill‖	do							.20						.70				.10		.20							.40						1.60
Utica‖	do			.02				.06	.20	.07	.12			.07	.24	.10		.20	.15	.15			.05	.30	.05		.20	.10	.02	.04			2.14
Wading River	Coast							.05	.83					.80	1.83											.12	.87						4.50
Wappingers Falls	Hudson							.42	.08					.65	1.28				T.					T.		.40	.51						3.34
Warwick	do							.35						.60	.85											1.50	1.00						4.30
Waverly‖	Susquehanna								.22			T.		.22	1.12	.01			T.	T.				.02	T.		.40	.02	.02		T.		2.03
West Berne	Mohawk													*	.60											.20	1.50						2.30
West Point	Hudson							.35						*	3.13											*	1.20						4.68
Windham	Mohawk							.12						.51	1.94	T.										.10	1.37						4.04
Pennsylvania.																																	
Altoona	Susquehanna							.60	T.				T.	1.64	.05		.05						T.			.57	.07			.10		.02	3.10
Ansonia	do							*	.34	T.				.20	.97								T.				.35	T.					1.86
Bellefonte	do							.44																		.75							1.19
Browers Lock	Schuylkill							.35						*	2.00		T.									1.04	.96			.24			4.59
Center Hall	Susquehanna							.45	T.				T.	T.	1.50	.50	.07									.33	.25						3.10
Clearfield	do							T.		.02	.21	.41		1.20	.30	.09	T.		T.							1.17	.10	.04					3.54
Coatesville	Coast							.41						4.21												1.30	2.50			.08			8.50
Doylestown	Schuylkill							.44						2.58													1.50						4.52
Dritton	Susquehanna			T.				.30	.20	T.	T.			1.05	1.45	.04	.02		.05						T.	.30	.30	.08		.07			3.86
Dushore	do																																
Easton	Delaware																																
Emporium	Susquehana							.50	.05	T.	T.	T.	T.	1.10	.15	T.	T.	T.	T.		T.	T.	.05	T.	T.	.60	T.	T.	T.		T.	T.	2.45
Ephrata	Susquehanna							.52						2.17												*	1.00		.15		T.		3.84
Everett	Juniata							.30	T.				.25	1.83	.25	T.	.15									1.00	.18		T.				3.96
Forks of Neshaminy	Delaware		.05					.35						2.50	.50		.01										1.65						5.06
George School	do							.51						1.19	1.40		.02									.71	1.07		T.				4.90
Gettysburg	Potomac							.47	.02				.01	2.25	.65											.58	.20		.04		T.		4.24
Girardville	Susquehanna			T.				.38	T.		T.		.15	2.72			.08				T.	T.				.50	.15	T.	T.	.05	T.		4.04
Gordon	do		.29	.09							T.			1.82	1.13	.06										.30	*	.61		.08			4.38
Hamburg	Schuylkill							.39						*	1.80											.20	.80						3.19
Hanover	Susquehanna							.50					.01	1.81			.02						T.			.40			.02	.02			2.81
Harrisburg	do							.46			T.		T.	1.80		T.	T.									.52	.08	T.		.10		.02	2.98
Huntingdon	Juniata							.60					T.	2.05		T.	.08									.55	.20		.15			.10	3.73
Hyndman	Potomac							.32	T.		T.		.55	1.50		T.	T.						T.	T.		*	*	*	*	.48			2.85

TABLE 2.—*Daily precipitation for December, 1909. District No. 1*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Pennsylvania—Cont'd.																																	
Kennett Square	Coast			T.					.28					3.73			T.									2.50		T.		.08			6.59
Lansdale	Schuylkill													1.10	1.15											.60	1.41						4.26
Lawrenceville	Susquehanna							.10			T.			.50	.60								.05			T.	.50		T.	T.			1.75
Lebanon	do			T.				.77	.01		T.		T.	1.70	.52	T.	T.							T.	T.	.48	.17	T.		.10		T.	3.75
Le Roy	do							.28	T.	.01	T.	T.	T.	.95	.82	.02	T.	T.	T.	.01	T.	T.	.05	.01	T.	.20	.30	.02	T.	.02		.01	2.70
Lewisburg	do							.40						2.07	1.05	.01	.01									*	.60			.05			4.19
Lock Haven	do							.66		T.	T.		T.	1.01	.52	T.	T.					T.	T.		T.	.50	.15		T.	.02			2.86
Marion	Potomac							.40					T.	1.90	.47		T.									.82					.06		3.65
Mauch Chunk	Delaware							.30	.31					2.64	.30											.31	.90						4.76
Mifflintown	Juniata							.16					T.	2.00	.32		.02									.26	.15			.04		.01	2.96
Milford	Delaware							.15	.30					*	2.85		T.						T.			*	1.00			T.			4.30
Montrose	Susquehanna							.07				.07	T.		.76	.15								.06		.30	.45	.14		T.			2.00
Mountain House	Juniata							.13	.09					1.93												*	.60						2.75
New Germantown	Susquehanna							.26				T.		2.50													.42						3.18
Ottsville	Delaware						.47	.05						1.07	1.82		.02									.53							3.96
Philadelphia (1)	do			T.				.74					.08	2.22			T.									.90	1.90	T.		.02			5.86
Philadelphia (2)	do																																
Philadelphia (3)	do			T.				.10	.51					1.20	1.67											*	2.70						6.18
Pocono Lake	do													.86	1.41			T.					T.			.40	1.00						3.67
Point Pleasant	do							.41						2.48	.44											.57	1.18						5.08
Pottsville	Schuylkill							.79			.03		.04	2.85			.03									.44	.12				.02		4.32
Reading	do							.63					.03	2.71												.79	1.08			.08			5.32
Renovo	Susquehanna							*	.50	T.			T.	.10	1.50	T.	.03								T.	T.	.50						2.66
Scranton	do			T.				.30	T.	T.	T.	T.	.03	1.47	.04	T.	.08	T.	T.				.09	.12	T.	.64	.61	.01	T.	T.			3.39
Seisholtzville	Schuylkill							.49						3.03	.33											.51	1.30						5.66
Selinsgrove	Susquehanna							.28						1.48	.30	T.										.35	.20			T.	.01	.02	2.64
Shawmont	Schuylkill							.40						2.90	.53											.40	.50						4.73
Smiths Corners	do							.50						2.78	.31											.39	.23						4.21
Spring Mount	do							.40						2.89	.60												1.96						5.85
State College	Susquehanna							.48	T.	.01	T.	T.	.02	1.47	.01	.01	.06		T.		T.					.75	.09	T.	T.	T.	T.	.02	2.92
Towanda	do							.21	T.	T.	T.	T.	T.	.80	.56	T.	T.	T.	T.	T.		T.	.05	T.		.20	.20	.04	T.	.02			2.08
Wellsboro	do							.43						.48	.70											*	.35						1.96
West Chester	Coast							.28						2.76	.02											.90	.50			.05			4.51
Wilkes-Barre	Susquehanna							.30					*	1.90		.05	.05						.10			*	.76						3.16
Williamsport	do							.51					*	2.37		T.						T.				.43			T.			3.31
New Jersey.																																	
Asbury Park	Coast							.38						2.55			T.									.30	1.15						4.38
Atlantic City	do			T.				.20					T.	2.21			.01									1.15	.27	.04		T.			3.88
Bayonne	do			T.				.49					T.	1.08	1.18								T.			.20	.85	T.					3.80
Belvidere	Delaware							.46					*	1.30	1.70											.25	1.26			T.			4.97
Bergen Point	Coast							.53					*	1.62	1.49								T.			.33	.83						4.80
Boonton‖	Passaic							*	.60					.13	2.25															T.			
Bridgeton	Coast							.35						1.75			T.									*	1.60	.10		.10			3.90
Burlington‖	Delaware			.02				.80					.12	2.38			T.									2.10	.05			T.			5.47
Canton	Coast							.40					T.	2.53			T.									*	1.20	.05		.05			4.23
Cape May City	do			T.				.24	.02				.08	1.67			.01									2.08	.40	.01		.04		T.	4.55
Cape May C. H	do																																
Charlotteburg	Passaic							.55						3.03									T.			*	1.40						4.98
Chatham‖	do							*	.55					.25	3.15																		
Clayton	Coast							.44						2.48			T.									*	1.30	T.		T.			4.22
College Farm	do							.47						4.03		T.	T.									.25	.72						5.47
Culver's Lake	Delaware							.44	T.					.65	1.19	T.	T.						.01	.03		.15	1.08	T.					3.55
Dover	Passaic							.55						3.30												*	1.50						5.35
Elizabeth	Coast							.44					T.	1.82												*	1.50						3.76
Englewood	do																																
Flemington	do			T.				.52					T.	2.45			T.									.20	.60						3.77
Freehold	do																																
Friesburg	Coast							.44						2.67			T.									.30	1.00	.02		.02			4.45
Haddonfield	Delaware			.01				.54					T.	2.71			T.									.73	.96			T.			4.95
Hammonton	Coast							.49						2.14			T.									*	2.75	T.		T.			5.38
Hightstown	Delaware							.59						2.19			T.									*	1.32						4.10
Imlaystown	do			T.				.68						2.86			.01									*	1.70						5.25
Indian Mills	Coast			.06				.42					T.	2.15			T.					T.				.62	1.68	T.		T.			4.93
Jersey City	do							.50					T.	2.19	.70	T.	T.	T.				T.				.94	.27	T.					4.60
Lakewood	do																																
Lambertville	Delaware			T.				.39						2.81			T.									.30	1.10	T.					4.60
Layton	do							.27						.55	1.79											*	1.20						3.81
Little Falls‖	Passaic							.57					.02	3.25	.18											.60	.07		T.				4.69
Long Branch	Coast																																
Mahwah‖	Passaic							*	.47					.37	2.72																		
Moorestown	Delaware			.01				.59					T.	2.68												*	1.74	T.		.01			5.02
Newark	Passaic							.49					.02	2.12	.40											.70	.05						3.78
New Brunswick	Coast																																
Newton	Delaware							.54						2.15												*	1.30						3.99
Northfield	Coast							.22						2.38			.01									.52	.95	.04		.02			4.14
Oceanic	do							.51					T.	2.76			T.									.08	1.07						4.42
Paterson	Passaic							.58					T.	1.47	1.68	T.	T.					T.				.20	.80	T.	T.				4.73
Phillipsburg	Delaware							.40					.01	2.15	.45		T.									.60	.56	T.		.01			4.18
Plainfield	Coast							.54					T.	2.98			T.					T.				.50	1.49	T.					5.51
Pleasantville	do							.10						2.54			.01																
Pompton Plains‖	Passaic																																
Port Norris	Coast																																
Rancocas	Delaware			T.				.60					T.	2.50			T.									1.35	.60	T.		.01			5.06
Rivervale	Coast							.75						*	2.10											.40	.60						3.85
Runyon	do							.47					*	2.77												*	.92						4.16
Somerville	do							.25						2.80												.30	.90						4.25
South Orange	do			T.				.56					T.	2.66		T.						T.				.20	.60	T.		T.			4.62
Sussex	Hudson							.50						.40	1.65											.10	1.20						3.85
Trenton	Delaware			T.				.60						2.30			T.									*	1.00						3.90
Tuckerton	Coast			.03				.28						2.39			.05									*	1.55	.18		.06			4.54
Vineland	do			T.				.35						2.41			T.									.35	1.10	.15		.05			4.41
Woodbine	do																																
West Virginia.																																	
Bayard	Potomac			.14	.03			.23	T.	T.		T.	.02	1.06	T.	T.	.12	.02	T.			.25	T.			.37	.70	.20	.20	.20	.20		3.74
Burlington	do							T.					*	1.55		T.	T.									.40							1.95
Franklin	do																																
Harpers Ferry‖	do							T.	.32					.36		1.34										.55				.05			2.62
Lost City	do							.17					T.	1.54			T.									.65	T.		T.				2.36
Martinsburg	do							.25					*	1.98			T.									.60		T.					2.83
Moorefield	do							.07				T.	T.	1.01												.40	T.			T.	T.		1.48
Romney‖	do							T.	.15					.45	1.03			T.								.20	.03			T.			1.86
Upper Tract	do							.25					T.	1.65	T.		T.									.45	T.						2.35
Maryland.																																	
Annapolis	Coast							.45						2.90												.95	1.00			.10			5.40

TABLE 2.—*Daily precipitation for December, 1909. District No. 1*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Maryland—Cont'd.																																	
Bachman's Valley	Coast							.33					.08	3.08			T.									.97	.07	.01		.08		T.	4.62
Baltimore	do							.11	.29					1.80	.22											.70	.48			.08		.12	3.80
Cambridge	do							.13	.22				T.	1.92	.66										.30	.50	T.					T.	3.73
Cheltenham	Coast																																
Chester	do							.15	.27					1.72	.45		.05									.40	.90	.10		.15			4.19
Chestertown	do							.25					T.	1.66		T.	T.									.39		T.		.04		T.	2.34
Chewsville	Potomac							.26				T.		.30	2.60	T.							.22			.10		.65				.10	4.01
Clear Spring	do							.45					T.	3.42			T.									1.50		T.		.10			5.47
Coleman	do							.14	.20					1.25	.56											*	.75						2.90
College Park	do							.02	.08		.01	.05	.50	1.60												.03	.50			.02			2.81
Cumberland	do							.20					T.	2.50	1.26		T.									.51	1.01	T.		.05		T.	5.63
Darlington	Coast							.09	.30					.87	.75		T.									.41	.65	.03		.05			3.15
Denton	do							.04	.17					1.48			T.									*	1.27			.05			3.01
Easton	do							.08					T.	3.13			T.									1.20							4.41
Emmitsburg	Potomac							.29	.05				T.	2.69	.80		T.						T.			.60	.65	T.		.06		T.	5.14
Fallston	Coast							.35					.07	2.32		T.	T.									.87	.90	T.		.05			4.56
Frederick	Potomac				.01			.40			T.		.90	1.14		.03	.01						.03	.06		.40	.42	T.	.08				3.48
Frostburg	do								.26					.34	1.92		.03									.08	.45			.03			3.10
Great Falls	do							.23						1.57	.13											*	.65					T.	2.58
Green Spring Furnace	do							.27						T.	1.68			T.								.55	.17	T.		.03	T.		2.70
Keedysville	do							.65	.04					2.67	.08		T.									.70	.15	.10		.10			4.47
Laurel	Coast							.32	T.					1.34	.24											.48	.21	T.		.19			2.78
Monrovia	Potomac																																
Ocean City	Coast								.06					2.02			T.									*	1.18			.11			3.37
Pocomoke City	do							T.						1.40												1.60							3.00
Porto Bello	do							.12	1.25		.04															.90	.10			.10		T.	2.51
Princess Anne	do							.21	.03				.02	2.08	T.		T.									.70	.12	T.					3.16
Rockville	Potomac							.20	.14				T.	1.55	.18		.02									.88	.81			.05		.05	3.88
Salisbury	Coast							.38	.02				T.	2.46	.26	T.	T.									.39	.22	T.	T.	.04		T.	3.77
Sanatorium	Potomac							.13					T.	.68			T.									.77	T.		T.	.14		T.	1.72
Solomons	Coast							.15	.23				T.	1.55	.72		.01									.50	2.00	.10		.20			5.46
Sudlersville	do								.35					.25	2.30											T.	.64		T.	T.		T.	3.54
Takoma Park	do							.42					.01	.84	.26		T.						T.			.25	T.			.01		T.	1.79
Taneytown	Potomac							.20	.08				T.	2.40	.70		T.									.88	.31	.03		.05		T.	4.65
Towson	Coast																																
Van Bibber	do							.31					.05	.96			T.									.40	.02						1.74
Westernport	Potomac	T.	T.					.25	.30	T.			T.	1.56	.70	T.	T.	T.								.50	T.	T.		T.			3.31
Woodstock	Coast																																
District of Columbia.																																	
Washington	Coast							.29					.01	2.43			.01									.60	.03	.01		.01		T.	3.39
Delaware.																																	
Delaware City	Coast			T.				.09	.33				T.	1.05	.24											.40	1.10	.05		.05			3.31
Dover	do			T.				.34						2.00			T.									2.40		T.		.10			4.84
Milford	do			T.				.04	.32				T.	.73	1.21		T.									.32	2.30	T.		.27			5.19
Millsboro	do			.02				.22					T.	1.73												.98	.40						3.35
Seaford	do							.04	.26					.91	.10		T.									.60	.65	T.		.03			2.59
Virginia.																																	
Culpeper	Rappahannock							.40						2.60		T.										.58							3.58
Dale Enterprise	Shenandoah			T.				.57					.06	1.50			T.						T.			.60	T.		T.				2.73
Doswell	Coast																																
Fredericksburg	Rappahannock							.26					T.	2.21	.31		T.									.59	.09			T.			3.46
Lincoln	Potomac							.64						1.87													.60						3.11
Mt. Weather	do							.16			T.	.12	1.85		T.		.02						T.			.75	.02	.01		T.			2.93
Nokesville	do													2.00			T.									.50							2.50
Quantico	do							.23						2.04			T.									.60							2.87
Shenandoah	Shenandoah							.23						1.51												.25							1.99
Staunton‖	do							.55					.45	1.44		T.		T.								.55							2.99
Stephens City	Potomac							.16						1.43	.19											.45							2.23
Warsaw	Rappahannock							.10						1.40		.10									.75	.20			.20				2.75
Woodstock	Shenandoah							.20						1.26												.70							2.16

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 1, North Atlantic States.*

Date.	Maine.												Concord, N. H.		Massachusetts.								Providence, R. I.		Connecticut.			
	Eastport.		Greenville.		Orono.		Portland.		Rumford Falls.		Van Buren.				Amherst.		Boston.		Middleboro.		Nantucket.				Cream Hill.		Hartford.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	33	22	30	15	33	14	36	22	36	22	.....	.....	37	18	41	18	40	23	37	18	35	32	40	22	32	18	41	20
2	38	32	29	23	34	13	35	28	35	28	.....	.....	37	29	38	29	37	33	38	29	45	33	38	31	33	20	38	29
3	38	34	33	27	36	31	40	34	40	32	.....	.....	40	30	38	28	40	34	38	31	41	36	39	32	34	22	39	33
4	39	36	34	29	40	31	44	34	40	35	.....	.....	41	28	43	25	48	33	45	28	40	35	44	30	32	23	39	32
5	42	38	36	32	48	34	47	35	40	32	.....	.....	41	30	52	28	50	36	51	27	46	35	50	35	43	26	49	34
6	39	35	37	31	45	33	46	32	44	27	.....	.....	50	26	50	26	56	36	54	24	50	37	54	33	45	30	50	39
7	39	34	34	28	42	25	41	30	39	32	.....	.....	39	24	35	20	42	34	44	20	49	36	47	29	36	29	40	28
8	40	32	33	26	40	30	40	26	36	28	.....	.....	36	24	36	24	41	28	41	31	52	33	40	26	38	29	39	25
9	32	26	26	17	36	23	31	22	28	22	.....	.....	29	20	30	19	33	23	31	18	33	26	31	20	35	13	31	20
10	29	15	20	11	29	17	32	18	28	14	.....	.....	31	19	32	21	34	25	34	17	35	25	33	21	28	14	33	21
11	26	14	19	10	27	11	29	16	24	13	.....	.....	27	17	36	18	36	22	36	16	36	26	36	23	29	15	35	24
12	29	18	20	14	28	5	25	14	24	10	.....	.....	29	11	30	13	30	18	32	13	36	28	32	18	28	12	27	16
13	30	16	19	8	27	9	36	20	21	7	.....	.....	33	13	36	18	41	25	40	27	44	32	44	25	32	21	45	22
14	44	30	34	16	43	19	48	35	40	22	.....	.....	44	33	45	34	53	39	51	34	52	37	51	37	36	32	52	36
15	42	34	34	28	43	31	41	32	36	29	.....	.....	38	30	40	30	44	35	43	29	42	35	42	33	35	24	40	33
16	35	25	29	21	38	28	39	28	32	24	.....	.....	38	28	36	26	42	33	43	21	39	33	39	29	32	20	36	30
17	31	23	22	17	33	23	36	24	29	16	.....	.....	33	22	36	24	40	28	38	27	37	32	37	28	30	19	36	25
18	27	21	23	9	31	12	32	21	26	14	.....	.....	30	20	30	20	34	26	34	22	37	29	35	24	28	15	34	23
19	22	17	16	10	28	12	32	18	26	20	.....	.....	30	14	31	17	34	23	34	19	33	28	33	22	28	18	31	20
20	23	12	20	0	28	2	34	19	28	16	.....	.....	30	16	30	14	35	22	34	7	34	26	34	19	27	9	31	18
21	27	18	20	13	30	14	32	17	27	23	.....	.....	30	15	30	13	33	21	31	12	33	24	30	18	28	10	30	18
22	29	23	20	16	28	19	28	19	25	21	.....	.....	29	18	28	17	31	23	31	17	32	25	30	19	32	18	30	22
23	31	22	26	17	33	18	35	22	30	21	.....	.....	32	21	36	23	39	24	40	19	37	25	39	22	29	15	35	23
24	25	17	19	8	32	17	31	19	24	16	.....	.....	28	17	36	16	33	23	34	25	33	27	34	21	29	21	35	25
25	26	12	21	6	27	5	26	14	23	8	.....	.....	26	8	22	10	33	20	31	4	38	25	33	16	28	15	25	17
26	32	23	20	16	24	18	27	22	26	20	.....	.....	27	23	26	22	32	26	33	27	41	30	33	26	25	19	30	24
27	24	10	19	6	24	15	27	14	22	13	.....	.....	24	1	29	14	26	21	27	21	30	25	27	17	28	14	28	16
28	16	6	15	− 1	21	− 9	26	16	24	8	.....	.....	25	− 6	27	2	29	17	33	2	30	26	31	16	27	9	28	6
29	19	14	14	− 7	20	−12	20	8	18	0	.....	.....	19	− 7	14	− 4	24	17	30	− 1	33	24	28	9	18	10	19	5
30	14	2	5	− 8	18	− 3	14	3	8	1	.....	.....	9	0	11	− 8	16	5	24	6	26	12	15	2	11	− 7	13	0
31	14	3	12	− 2	17	− 1	22	− 1	20	4	.....	.....	22	− 2	26	− 2	23	4	23	0	24	11	24	1	25	0	25	6
Mns	30.2	21.4	23.8	14.1	31.7	15.6	33.3	21.1	29.0	18.6	.....	.....	31.9	17.4	33.2	17.9	36.4	25.1	36.9	19.0	37.8	28.6	36.2	22.7	30.4	17.2	34.3	22.0

Date.	New Haven, Conn.		New York.																Pennsylvania.									
			Addison.		Albany.		Binghamton.		Cooperstown.		Indian Lake.		New York.		Clearfield.		Easton.		Everett.		Harrisburg.		Philadelphia.		Scranton.		Wellsboro.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	44	23	49	18	32	16	43	19	34	12	42	− 4	44	26	58	11	.....	.....	50	17	46	32	50	33	42	26	47	17
2	40	29	45	19	36	26	36	27	34	23	35	17	41	33	54	12	.....	.....	50	14	47	35	41	34	38	29	44	18
3	40	34	45	32	34	25	40	28	38	22	40	12	40	36	52	25	.....	.....	47	18	46	34	43	37	42	32	42	33
4	42	32	42	32	38	31	34	28	34	25	37	22	44	34	55	20	.....	.....	49	30	54	32	50	41	37	32	45	28
5	51	36	45	28	45	30	42	32	38	29	45	26	52	37	57	30	.....	.....	61	30	56	38	57	39	39	33	56	28
6	54	33	46	28	44	29	42	26	37	24	41	17	54	36	45	30	.....	.....	44	34	45	35	50	42	46	31	46	29
7	47	31	36	21	36	25	40	22	37	20	35	16	50	35	42	21	.....	.....	39	19	39	30	53	36	43	26	39	24
8	42	25	37	19	39	24	35	19	37	20	33	18	43	25	44	8	.....	.....	40	25	37	25	41	28	36	20	32	16
9	31	20	26	13	32	19	25	14	25	20	21	7	30	20	40	12	.....	.....	28	10	26	16	31	23	24	14	21	9
10	33	21	30	17	32	24	27	19	25	19	23	16	31	21	35	10	.....	.....	25	14	29	20	32	23	28	18	28	15
11	38	25	35	25	31	19	28	22	24	20	25	9	35	26	40	27	.....	.....	31	18	33	24	37	25	31	24	29	22
12	30	18	28	21	23	18	31	19	22	14	30	−12	32	24	38	29	.....	.....	33	26	32	27	34	29	32	22	28	20
13	47	26	40	25	41	19	43	26	38	19	25	− 5	52	31	46	30	.....	.....	38	31	47	27	58	29	44	24	40	25
14	51	37	55	32	44	38	43	30	38	32	35	23	52	36	40	24	.....	.....	40	32	42	35	57	38	43	34	45	30
15	42	33	33	30	40	32	33	28	32	30	32	25	41	34	41	19	.....	.....	37	29	39	32	44	33	37	30	32	28
16	36	30	30	27	36	29	30	22	30	24	27	22	37	28	38	15	.....	.....	31	20	32	24	37	30	32	24	30	24
17	38	26	34	21	35	27	34	22	27	18	30	15	37	26	40	13	.....	.....	44	9	40	23	40	26	38	22	35	17
18	33	25	29	19	31	23	26	21	24	20	25	14	34	25	29	15	.....	.....	36	16	30	21	37	26	30	20	31	17
19	34	22	24	18	29	22	22	19	24	18	20	12	30	21	22	12	.....	.....	19	10	24	17	33	23	25	17	25	15
20	32	19	23	16	27	18	22	19	22	6	22	12	19	20	21	10	.....	.....	20	13	25	16	29	20	25	15	24	12
21	32	19	25	12	30	16	26	17	24	6	20	12	31	19	30	− 1	.....	.....	35	9	34	15	35	20	28	15	24	10
22	31	25	27	18	29	21	25	19	23	14	21	10	30	26	28	11	.....	.....	31	16	30	23	33	27	26	21	25	15
23	38	25	34	24	34	24	32	24	28	18	23	13	39	28	31	20	.....	.....	30	19	38	30	43	30	35	24	36	21
24	37	26	31	28	33	21	32	29	28	25	25	17	40	33	33	24	.....	.....	31	21	32	26	40	33	34	30	32	26
25	30	22	29	26	25	19	30	23	26	22	21	− 5	34	31	29	21	.....	.....	32	20	30	24	34	28	31	26	29	24
26	32	27	28	23	29	22	26	20	23	18	22	14	32	28	29	23	.....	.....	32	18	32	27	32	28	29	23	29	20
27	29	19	29	14	25	16	25	14	24	15	20	0	29	23	29	15	.....	.....	32	19	30	21	30	25	26	12	25	16
28	30	15	30	14	26	11	27	15	22	10	21	− 6	31	20	20	10	.....	.....	25	16	29	19	33	20	30	13	26	4
29	25	10	24	1	20	3	15	0	10	− 2	15	−11	26	9	20	3	.....	.....	25	14	24	10	26	10	20	2	20	− 1
30	16	1	17	− 3	13	− 2	11	0	8	− 8	12	−10	17	6	15	2	.....	.....	20	3	20	10	20	10	13	3	16	− 9
31	27	5	24	− 3	18	− 1	22	0	16	− 6	19	−23	24	13	.....	.....	.....	.....	24	8	21	12	25	13	24	5	25	9
Mns	36.5	23.8	33.2	19.9	31.8	20.8	30.5	20.1	27.5	17.0	27.2	8.8	36.8	26.1	36.7	16.7	.....	.....	34.8	18.6	35.1	24.5	38.9	27.7	32.5	21.5	32.5	17.8

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 1*—Continued.

Date.	New Jersey.								Martinsburg, W. Va.		Maryland.								Washington, D. C.		Millsboro, Del.		Virginia.					
	Asbury Park.		Atlantic City.		Hightstown.		Newton.				Baltimore.		Darlington.		Frederick.		Westernport.						Culpeper.		Fredericksburg		Staunton.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	43	24	44	26	47	19	41	14	49	21	52	33	46	26	51	22	48	20	51	25	47	21	47	19	52	25	51	23
2	40	31	39	29	41	26	44	19	47	20	46	37	45	30	49	22	49	20	50	28	43	23	50	18	49	22	53	24
3	40	30	42	36	41	32	37	25	46	22	47	37	44	29	48	34	58	19	48	36	48	31	46	18	51	21	48	25
4	45	34	49	35	47	31	38	28	54	26	58	36	51	26	57	30	50	46	58	31	56	24	58	28	62	29	64	34
5	53	32	57	32	53	30	50	28	57	33	62	43	57	32	60	33	60	30	66	36	61	30	58	28	64	31	66	33
6	50	35	55	33	49	28	54	26	50	32	50	35	54	36	53	32	52	34	51	30	58	30	55	32	57	37	58	39
7	48	31	53	31	46	24	40	23	45	25	45	32	42	25	42	24	48	22	43	26	58	28	43	22	44	24	46	29
8	54	33	42	28	52	32	41	25	37	30	40	32	42	26	42	28	41	27	42	30	50	22	42	28	44	25	38	28
9	33	20	30	20	32	19	30	13	27	17	32	21	28	16	28	17	28	11	30	20	32	20	37	20	37	21	33	17
10	31	19	30	20	32	18	30	15	28	17	31	21	29	16	28	19	25	17	31	21	33	18	35	11	35	10	34	16
11	37	22	38	22	38	20	32	21	35	19	38	24	35	18	36	21	29	16	38	24	42	19	32	15	34	15	37	22
12	33	26	37	28	33	24	29	17	38	26	35	30	32	19	37	31	35	23	38	33	35	30	38	29	40	30	36	29
13	48	32	54	37	47	27	38	20	42	31	56	30	50	27	50	30	34	25	58	32	59	34	43	32	56	32	38	30
14	52	35	49	37	55	35	53	33	43	32	46	38	54	33	44	35	39	32	48	35	58	30	45	32	55	33	41	30
15	41	33	45	30	42	33	40	30	40	36	45	33	43	32	42	33	38	31	44	28	50	28	49	35	52	34	44	32
16	36	27	35	26	38	25	35	22	31	30	36	27	35	26	34	26	31	23	35	25	44	20	39	24	40	26	37	26
17	46	22	41	23	39	21	37	18	47	19	46	24	39	17	45	20	42	15	46	21	40	17	45	15	48	16	44	24
18	38	25	36	23	37	23	33	20	29	21	38	24	36	22	38	22	35	16	37	22	38	27	42	26	43	27	34	23
19	31	19	30	18	33	16	31	14	29	15	28	19	28	15	29	17	24	14	27	19	33	17	32	15	36	18	29	18
20	27	16	26	17	29	15	31	9	27	14	29	19	26	14	28	17	26	16	29	15	30	14	29	16	31	19	33	17
21	31	16	32	16	31	13	30	12	31	14	37	17	34	10	35	13	35	11	36	13	37	10	35	9	37	10	36	16
22	30	22	33	26	31	20	27	18	32	20	32	26	29	10	32	24	30	18	30	19	35	17	32	15	34	18	28	18
23	40	25	42	26	42	25	40	21	35	21	43	28	42	23	39	25	30	20	40	26	45	18	41	21	41	20	42	20
24	40	34	39	26	42	32	39	30	37	26	37	29	35	23	37	24	39	23	38	26	38	24	38	14	44	15	46	22
25	38	32	43	25	37	22	33	21	37	25	33	28	32	22	33	25	32	25	34	30	41	23	35	26	34	28	34	23
26	38	24	39	26	33	27	29	22	35	28	35	30	32	27	33	29	34	26	35	30	36	30	37	30	38	31	34	28
27	39	20	30	23	29	15	27	15	33	23	32	26	30	18	32	22	31	20	32	16	34	25	34	16	36	16	33	19
28	30	18	33	22	34	11	32	7	30	23	32	24	30	15	32	15	28	22	34	17	35	15	35	15	36	19	32	19
29	28	17	27	10	26	3	26	5	23	14	30	14	26	12	25	13	23	12	26	11	36	25	28	18	34	20	21	13
30	24	4	18	7	23	2	17	− 2	17	6	22	9	20	3	20	7	17	3	20	8	36	10	21	8	22	4	20	7
31	24	9	26	13	26	− 1	25	2	27	9	28	14	25	5	24	13	31	5	28	14	31	15	27	0	31	3	33	8
Mos	38.1	24.7	38.5	24.8	38.2	21.5	35.1	18.4	36.7	22.4	39.4	27.1	37.1	21.1	38.2	23.3	36.2	20.7	39.5	24.1	42.5	22.4	39.6	20.5	42.5	21.9	39.4	23.0

Climatological Data for December, 1909.

DISTRICT No. 2, SOUTH ATLANTIC AND EAST GULF STATES.

CHARLES F. VON HERRMANN, District Editor.

GENERAL SUMMARY.

The climate of continental America is characterized by great extremes of temperature, not only during brief intervals of time, but also during longer periods, as revealed by the monthly means. Although November in the district was one of the warmest on record, the State average temperature in Georgia, Alabama, and Mississippi being the highest for any November since reliable records have been kept, conditions during December, 1909, passed almost to the other extreme. Very cold weather prevailed in all the South Atlantic and east Gulf States during the month of December. The State average temperature for Mississippi was lower than for any December during a period of 22 years, and in the other States in the district climatic history reveals but few colder Decembers, namely those of 1893, 1895, and 1903. In this connection the distribution of atmospheric pressure is worthy of note. The barometer was persistently low on the north Atlantic coast during the entire month, especially from the 14th to the close of the month, probably indicating an unusual development of the North Atlantic area of permanent low pressure, and explaining the almost uninterrupted drift of air from the northwest in the eastern portion of the United States. The coldest weather for the month occurred during the last decade and no portion of the district was free from frost, except the extreme southern part of Florida. The cold wave of December 30 was quite severe in central and northern Florida; many oranges were frozen, young growth of trees was cut back, but no orange trees were killed. Warning of the approach of the cold wave was issued well in advance and the information was extensively utilized. "Firing" was resorted to as a means of protection in many groves and much fruit was saved. Trucking interests suffered considerable loss.

The district came under the influence of 4 or 5 well-defined barometric depressions during the month. The disturbance that developed into a marked area of low barometer over Wisconsin on the morning of the 5th, and that which was central over Ohio on the 7th, caused a drift of air from the south, with the warmest weather for the month from the 4th to the 7th, and fairly general rains, which were heavy in northern Georgia. The subsequent fall in temperature was quite marked. At Atlanta the temperature fell from 62° at 4 a. m. on the 7th to below freezing before midnight of the same day. On the 12th the atmospheric pressure was low over southern Alabama and Mississippi and in southern Illinois, the 2 storms consolidating over Indiana by the morning of the 13th, and thence moving to Massachusetts, accompanied by general rains in the district from the 12th to 14th, which effectually broke the drought that had prevailed in many sections. Heavy rains, exceeding 2.50 inches in 24 hours, occurred at several stations in Florida and Mississippi on the 12th and in North Carolina and Virginia on the 13th. The rains of the 18th to 20th accompanied a moderate barometric depression that moved from the mouth of the Mississippi River to central Florida on the 19th.

Christmas day throughout the district was cold and blustery in consequence of the sudden development of a severe storm in the Ohio Valley on the morning of the 25th. The storm increased in force as it moved eastward to the north Atlantic coast, the pressure falling to 28.57 inches at Atlantic City on the early morning of the 26th. Rain occurred throughout the district and considerable snow in the western portions of Virginia and North Carolina and in northern Georgia, Alabama, and Mississippi. High west to northwest winds prevailed on Christmas day and the following Sunday. The lowest atmospheric pressure was recorded on the 25th at most stations, the minimum being 29.26 inches at Norfolk, Va. The sudden southward movement of an area of high atmospheric pressure from Nebraska to southern Mississippi brought the highest pressure and the lowest temperatures in the district on the morning of the 30th. The maximum pressure was 30.50 inches at Pensacola, Fla. The temperature on the morning of the 30th ranged from 3° in Virginia to 16° in Florida.

The amount of sunshine was abundant throughout the district. The number of rainy days was above normal only in Alabama and Mississippi.

TEMPERATURE.

The temperature was decidedly below the normal throughout the entire district during December. The deficiency was least in southern Florida (from 2° to 3°) and gradually increased toward the north and west, a large number of stations near the border of adjoining districts having deficiencies of over 6°, and a few places in northern Georgia and Mississippi over 8°. In Georgia and North Carolina only December, 1903, was colder than the current month; in South Carolina, December in 1893; in Florida only December in 1895 and 1903, while in Mississippi the month was the coldest on record. During the first week the temperature was seasonable or somewhat above normal everywhere, the maximum temperature, which generally occurred on the 1st, 5th, or 7th, slightly exceeding 80° in all States except North Carolina and Virginia, where the highest temperatures were, respectively, 77° and 69°. In Florida a moderately warm period occurred toward the end of the second decade, giving a maximum temperature for the district of 88° on the 20th at Arcadia, Fla.

The last half of the month was characterized by continuously cold weather over most of the district, with temperatures almost as low as ever experienced in the southeastern United States. The lowest temperatures occurred uniformly on the 30th, when the minimum registered was 3° in Virginia, 4° in North Carolina, 5° in Georgia, 6° in Alabama, and 9° in Mississippi. Over most of the district the monthly mean temperatures ranged between 35° and 50°; in Virginia, however, a monthly mean of 27.2° was recorded at Hot Springs; in Florida the mean was between 50° and 65° at many stations. The highest monthly mean temperature was 69.2° at Key West, Fla. At Miami, Fla., the December mean was 67.0°.

Intensely cold weather is so detrimental to the citrus fruit interests in Florida that a comparison of the progress southward of the cold wave of December 30, 1909, with the previous severest cold spells during December will be of general interest. The previous greatest degrees of cold in Florida during December occurred in the years 1880, 1894, and 1901. The following table gives the minimum temperatures at all regular stations in Florida for 4 years:

Station.	1880.	1894.	1901.	1909.
	°F.	°F.	°F.	°F.
Cedar Keys	22			
Jacksonville	19	14	20	19
Jupiter		24	38	30
Key West	56	44	50	48
Pensacola	17	14	17	21
Tampa		19	24	26

The cold weather of December, 1894, was the severest for the month of which there is authentic record.

PRECIPITATION.

The rainfall was again below normal in all the States bordering the Atlantic Ocean, with the greatest deficiencies in North

Carolina and the least in Florida; on the other hand the State averages for Alabama and Mississippi show a moderate excess in those States. The total rainfall for the month was under 2.00 inches at many stations in Florida and eastern North Carolina and at a few points in South Carolina. In the region of heaviest rainfall, comprising western Florida, southern and southwestern Alabama, southeastern Mississippi, and the northern portion of Georgia the monthly totals of precipitation ranged from 6.00 to slightly over 10.00 inches. The smallest monthly amount was 0.14 inch at Hilliard, Fla., and the maximum was 10.94 inches at Spring Hill, Ala.

Over most of the district the rains fell during brief fairly distinct periods, namely, 2d to 3d, 6th to 8th, 12th to 14th, 18th to 20th, and 24th to 26th. The most general and copious rains fell on the 12th to 14th, and while the amounts were excessive at some stations the ground was so dry that a large percentage of the rainfall was absorbed. The number of days with rain averaged about 6 in the States bordering the Atlantic and 10 in Alabama and Mississippi. The maximum 24-hourly rainfall in connection with the storm of December 6–7 was 3.45 inches at Diamond, Ga.; during the storm of 12–13th heavy rains occurred at 3 stations in Virginia, 2 in North Carolina, 2 in Florida, and 4 in Mississippi. The maximum fall was 4.83 inches on the 11th and 12th at Molino, Fla.

In the northern portions of Mississippi, Alabama, and Georgia and in western North Carolina and Virginia considerable snow fell on the 18th to 19th and 24th to 25th. The greatest depth in Virginia was 7.0 inches at Charlottsville, all of which fell on the 25th; in North Carolina the largest monthly total was 4.6 inches at Statesville, in Georgia 7.0 inches at Diamond, in Mississippi 6.2 inches at Booneville.

RIVER CONDITIONS.

When the rivers are low the stream flow is maintained chiefly by the underground waters, but rivers lag in reflecting either the abundance or scarcity of the supply. The average stages in all the rivers in the district were very low in December. In some cases the mean was far below the normal stage for December, as for example at Cheraw, on the Pedee River, in South Carolina, where the mean for 17 years is 5.7 feet, but the December average was only 3.2 feet. In a few cases the lowest river stages surpassed all previous records.

MISCELLANEOUS PHENOMENA.

The number of bright days was quite large in all sections; the average number of clear days in Virginia, North Carolina, and Florida was 18 and in the rest of the district 14 to 16. The wind movement was large and seven regular stations reported maximum wind velocities exceeding 40 miles an hour. At Hatteras, N. C., a maximum velocity of 58 miles from the west occurred on the 25th; at Atlanta, 50 miles from the northwest on the 26th; and at Pensacola, 52 miles from the southeast on the 12th. The average monthly movement exceeded 10 miles an hour at Atlanta, Hatteras, Pensacola, and Jupiter. The prevailing winds were from the northwest.

NEWS ITEMS.

The draining of the Everglades by the State of Florida was prosecuted vigorously during the month. The purchase of two additional dredges is contemplated in order to advance the work more rapidly. With the complete equipment 80,000 cubic yards will be cut per month. It is estimated that ultimately 5,000,000 acres will be made arable.

In a communication to the official in charge of the local office of the Weather Bureau at Jacksonville, Mr. E. H. Sellards, State Geologist of Florida, gives an interesting account of his investigation of the temporary or disappearing lakes of Florida, from which the following extract is made:

> Certain lakes in the State, notably Alachua Lake in Alachua County, Miccosukee Lake in Jefferson County, Lafayette, Jackson, and Iamonia lakes in Leon County, occasionally become dry. It is commonly believed that these lakes disappear and reappear without any evident cause and with no relation to the rainfall of the section. From the records of rainfall at the Weather Bureau station at Jacksonville, Fla., information was obtained of much importance bearing on the history of these lakes as well as on the underground water supply in general. The evidence is conclusive that the lakes go dry when the rainfall has been below normal for a few successive years.
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> That the lakes go dry under these conditions may seem quite natural; however, in the case of the temporary lakes in Florida the water finds its exit by subterranean drainage. It is popularly supposed that the escape depends simply upon the lake finding connection with an assumed underground stream. Upon this supposition extensive plans of drainage have been based and attempted. Little is at present known in regard to the formation and history of these lakes and to intelligently discuss and present the subject it is necessary to have facts and not inferences. The whole problem of underground water supply is important in this State in connection with irrigation and general purposes and the records of the Weather Bureau are of great value in connection with the subject.

TABLE 1.—*Climatological data for December, 1909. District No. 2, South Atlantic and east Gulf States.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Virginia.																				
Arvonia	Buckingham	350	5	32.6	− 4.5	60	4	3	30	30	3.53	+ 0.49	2.48	7.5	5	22	4	5	n.	Rev. Plummer F. Jones.
Ashland§	Hanover	221	18																	E. L. C. Scott.
Botetourt	Botetourt	820	5								2.92		2.12	2.0	3					D. D. Boose.
Buchanan	Botetourt	820	5																	
Callaville	Brunswick	250	15	37.0	− 3.8	62	5	12	31	33	1.67	− 1.69	0.82		5	14	12	5	sw.	F. M. Gage.
Cape Henry	Princess Ann	20	35	38.7	− 5.0	64	7	16	30	23	1.76	− 1.67	1.11	0.8	4	18	5	8	nw.	U. S. Weather Bureau.
Charlottesville	Albemarle	800	20	31.9[d]	− 6.2	64	4†	9	30	24	3.52	− 0.30	2.51	7.2	4	7	8	8	w.	Leander McCormick.
Clarksville	Mecklenburg		15								3.35	− 0.37	2.20	0.5	5					J. Henry Ligon.
Columbia §	Fluvanna	246	11	32.8	− 4.6	64	4†	7	30	37	2.95	− 0.89	2.30	5.0	3	20	7	4	w.	Agent, C. & O. R. R.
Danville	Pittsylvania	413	9								2.20		0.89	1.4	9	18	5	8	nw.	C. G. Watkins.
Diamond Springs	Princess Anne	20	....	36.8		64	4†	12	31	35	2.67		2.00	0.5	2					Virginia Experiment Sta.
Dinwiddie	Dinwiddie	267	5																	W. N. Colson.
Hampton	Elizabeth City	5	26	38.0	− 4.1	61	13	12	30	23	1.48	− 1.52	1.00	0.2	4	23	3	5	nw.	Hampton Institute.
Hot Springs	Bath	2,195	17	27.2	− 5.5	58	5	3	31	30	2.48	− 0.85	0.98	4.0	6	14	10	7		James P. Scott.
Ivor	Southampton	87	....	35.2		69	4	9	30†	41	0.50		0.25		2					Agent N. & W. Ry.
Lexington§	Rockbridge	1,060	32	30.5	− 5.1	65	5	8	30†	33	2.78	− 0.08	1.73	4.5	3	25	1	5		Virginia Mil. Institute.
Lynchburg	Campbell	685	38	34.2	− 4.9	66	5	12	30	32	2.79	− 0.44	1.83	5.0	5	11	13	7	nw.	U. S. Weather Bureau.
New Castle	Craig	1,300	....								1.12		1.12		1					Miss J. L. Martin.
Newport News§	Warwick	55	6	38.2		64	6†	13	30	23	1.12		1.32	0.8	5	19	5	7	nw.	Ernest W. Sniffen.
Norfolk	Norfolk	91	39	38.8	− 4.0	64	13	13	30	23	1.91	− 1.48	1.46	0.3	4	16	8	7	nw.	U. S. Weather Bureau.
Petersburg	Dinwiddie	60	22	37.2[e]	− 4.0	66	5†	11	30	33	2.56	− 0.52	1.85	0.2	4				n.	Central State Hospital.
Randolph	Charlotte	334	5								2.75		1.26	T.	4					W. B. Spencer.
Richmond	Henrico	144	30	35.9	− 5.1	64	4	10	30	27	3.39	+ 0.29	2.52	3.3	6	9	16	6	nw.	U. S. Weather Bureau.
Rocky Mount	Franklin	1,150	15	33.6	− 6.4	68	5	8	30	37	3.30	− 0.18	1.88	2.0	3				nw.	G. W. B. Hale.
Sabot	Goochland	125	....																	W. A. Jacobs.
Saxe	Charlotte	350	6	34.8		69	5	10	21†	43	2.64		2.02	1.0	3	22	1	8	nw.	State Experim. Farm.
Spottsville (near)	Surry	15	21	35.7	− 5.0	67	5	7	30	37	2.52	− 0.67	2.00	0.4	5	21	2	8	nw.	B. W. Jones.
Williamsburg	James City	70	18	36.4	− 5.1	63	5†	7	30	34	2.68	− 1.14	0.98	2.5	6	20	5	6	nw.	Eastern State Hospital.
North Carolina.																				
Beaufort	Carteret	10	7	44.1[b]	− 4.5	67	6	17	30	23	3.83	− 0.83	1.03	T.	9	21	2	8	nw.	H. D. Allen.
Belhaven	Beaufort	4	....	40.0		72	7	14	30†	38	1.47		0.86	T.	3	22	5	4	nw.	William S. Hopkins.
Brewers	Wilkes	1,950	12	36.4	− 2.6	75	4	6	30	43	3.47	− 0.92	1.65	2.0	6	17	6	8	w.	W. L. Brewer.
Caroleen	Rutherford	806	9	37.8		69	5†	6	30	36	4.26		2.06	T.	4	18	8	5	nw.	S. B. Tanner.
Chalybeate Springs	Harnett	500	3	38.2		73	5	8	31	43	2.18		1.64	T.	4	19	3	9	w.	J .A. Smith.
Chapel Hill	Orange	500	51	39.5	− 2.7	72	5	10	30	36	2.68	− 1.13	1.99		4	18	8	5	w.	Prof. A. H. Patterson.
Charlotte	Mecklenberg	808	33	39.2	− 3.7	69	4	12	30	27	2.51	− 1.35	1.59	0.2	7	12	9	10	sw.	U. S. Weather Bureau.
Chimney Rock	Rutherford	1,150	....	39.0		69	4	10	30	35	5.04		2.67	4.1	4	21	6	4	nw.	Dr. L. B. Merse.
Clinton	Sampson	156	2	41.6		75	7	13	30	40	1.64		0.75	T.	4	22	3	6	n.	Thomas Boyette.
Eagletown	Northampton	66	4	37.4		67	7	13	31	35	3.08		2.56	1.3	4	20	7	4	w.	J. T. Elliott.
Edenton	Chowan	30	15	39.0[c]	− 4.0	64	6†	13	30	40	1.81	− 1.75	0.91	T.	2	20	5	6	nw.	E. R. Conger.
Fayetteville	Cumberland	170	22	41.3	− 2.4	74	5	14	30†	42	1.38	− 3.00	1.00	T.	7					Frank Glover.
Goldsboro	Wayne	102	39	40.0	− 3.8	70	6	12	30†	41	1.90	− 1.56	0.95	T.	3				nw.	Mrs. N. B. Taylor.
Graham	Alamance	656	7								3.01		1.39	1.6	6					Dr. W. R. Goley.
Greensboro	Guilford	843	28	36.9	− 4.0	72	5	11	30	32	2.35	− 1.06	1.00	T.	6				nw.	A. R. Horry.
Greenville	Pitt	75	16								1.72	− 1.76	0.96	T.	4					C. V. York.
Hatteras	Dare	11	35	44.0	− 4.8	69	13	20	30	24	2.15	− 2.96	1.55	T.	7	20	6	5	nw.	U. S. Weather Bureau.
Henderson	Vance	490	16	37.3	− 3.4	65	4†	12	30	27	1.65	− 2.26	1.01	1.3	4	22	5	4	w.	Enoch Powell.
Kinston	Lenoir	46	11																	Rev J. R. Rountree.
Lenoir	Caldwell	1,186	36	35.0	− 3.6	71	4	4	30	44	3.59	+ 0.08	1.69	1.0	4	21	5	5	w.	G. M. Goforth.
Lexington	Davidson	810	8	35.9		70	4†	9	30	40	2.39		1.47	T.	4	19	8	4	nw.	H. R. Berrier.
Lincolnton	Lincoln	994	4	37.8		69	4	7	30	39	1.42		1.30		3	21	1	9	sw.	L. B. Thompson.
Louisburg	Franklin	375	18	37.8	− 3.1	67	7	14	30†	36	1.57	− 1.83	1.08	0.2	4	22	3	6	nw.	T. B. Wilder.
Lumberton	Robeson	102	26	40.6	− 3.5	74	5	15	30†	40	2.38	− 0.98	0.93	T.	9				w.	B. M. Davis.
Manteo	Dare	12	4	40.6		66	8	16	30	28	1.04		0.58	T.	2	19	4	8	nw.	U. S. Weather Bureau.
Marion	McDowell	1,425	17	37.2	− 3.2	76	4†	5	30	42	4.38	− 0.22	2.13	1.0	5	16	8	7	ne.	Thomas McGuire.
Moncure	Chatham	145	15	38.4	− 3.4	73	5	10	31	48	1.75	− 1.71	1.17		6	18	5	8	nw.	B. J. Utley.
Monroe	Union	586	15	39.0	− 3.6	72	5	8	30	44	2.94	− 0.53	2.00		5	18	4	9	sw.	T. A. Ashcraft.
Morganton	Burke	1,135	22	36.8	− 4.7	69	4	9	30	39	4.27	+ 0.38	2.00	T.	4	20	2	9	sw.	H. D. Judd.
Mt. Airy	Surry	1,048	21	35.5	− 3.2	72	4	7	30	46	3.53	− 0.04	1.72	3.0	5	20	4	7	ne.	Prof. A. H. Merritt.
Mt. Holly	Gaston	616	12								3.34	− 0.85	1.34	T.	7					John W. Holland.
Nashville	Nash	190	5	37.8		77	7	12	30	38	2.26		1.64	T.	4	15	9	7	n.	J. B. Boddie.
Newbern	Craven	12	27	40.8	− 5.9	73	7	12	30	35	2.03	− 1.66	1.08	T.	5				nw.	James B. Hill.
Pinehurst§	Moore	650	5	41.0		73	5	11	30	37	2.00		1.47		3	22	2	7	w.	General Office..
Pittsboro	Chatham	480	18	37.6	− 3.9	69	5	11	30†	41	2.51	− 0.25	1.81		2	21	1	9		J. E. Morgan.
Raleigh	Wake	390	38	39.4	− 3.3	69	5	12	30	27	1.89	− 1.28	1.30	T.	3	16	8	7	nw.	U. S. Weather Bureau.
Ramseur	Randolph	442	2	36.4[a]		70	5	9	31	41	2.95		2.00		2	17	8	6	n.	P. P. Turner.
Randleman	Randolph	810	4								2.35		1.64		6					John R. Walton.
Reidsville	Rockingham	828	10	37.8	− 0.8	71	5	10	30	40	2.55	− 1.33	1.91	1.5	8	18	3	10	nw.	E. M. Redd.
Rockingham	Richmond	210	14	39.8[c]	− 4.2	71	5	11	30	40										H. S. Ledbetter.
Roxboro	Person	600	11																	T. C. Bradsher.
Salem	Forsythe	1,000	14	35.4	− 3.5	69	4†	10	30	40	2.06	− 1.92	1.24		3					Rev. H. E. Rondthaler.
Salisbury	Rowan	760	25	37.8	− 4.6	66	6	9	30	31	2.48	− 1.27	1.04		6	21	1	9	n.	Miss Thelma Wilkinson
Saxon	Stokes	900	17	34.2	− 4.8	72	5	10	30	40	2.42	− 1.42	1.52	2.0	4	17	7	7	nw.	R. P. McAnnaly.
Scotland Neck	Halifax	80	5																	J. Y. Savage.
Selma	Johnston	225	19	38.9[b]	− 3.5	68	6	13	31	27	2.50	− 1.14	2.00	T.	4					Dr. R. J. Noble.
Settle	Iredell	700	13	35.2	− 4.4	70	4	6	30	42	2.96	− 1.51	1.50	3.6	3	13	5	13	se.	C. H. Smith.
Sloan	Duplin	50	16	42.2	− 3.7	77	7	12	31	38	2.84	− 0.78	1.80	T.	6	21	2	8	n.	D. M. Sholar.
Snowhill	Greene	80	4	40.3		74	7	13	31	38	1.94		1.41	T.	3	18	6	7	n.	Lev. J. H. Mewborn.
Southern Pines	Moore	519	19	41.6	− 4.0	72	4†	12	30	35	2.08	− 1.55	1.40	T.	3	17	5	9	nw.	Mrs. P. H. Beck.
Southport	Brunswick	18	54	44.9	− 4.3	69	6†	16	30	28	3.07	− 0.59	1.62	T.	8	19	4	8	nw.	Mrs. Charles E. Taylor.
Statesville	Iredell	950	21	38.1		70	5	8	30	37	2.52	− 1.63	1.03	4.6	4	17	7	7	sw.	D. M. Thompson.
Tarboro	Edgecombe	50	24	39.5[c]	− 3.5	71	6	13	31	39	2.48	− 1.27	1.92	T.	6	17	6	8	nw.	E. V. Zoeller.
Troy	Montgomery		....	39.7		69	5	10	30	31	2.67		2.05	0.3	4	22	3	6	sw.	Mrs. O. B. Deaton.
Weldon	Halifax	81	37	37.2	− 3.6	69	5†	13	31	40	2.09	− 1.43	1.52	0.8	5				w.	H. S. S. Cooper.
Whiteville	Columbus	59	4	42.0		76	7	12	31	44	2.68		1.18	T.	4	17	7	7	nw.	Rev. C. C. Smith.
Willard	Pender	51	1	41.0		76	7	11	31	42	3.65		2.23		5	21	2	8	nw.	J. H. Jefferies.
Wilmington	New Hanover	52	38	43.8	− 3.4	73	5	16	30	28	2.50	− 0.62	1.63	T.	10	18	6	7	nw.	U. S. Weather Bureau.
Yanceyville	Caswell		....																	A. Y. Kerr.
South Carolina.																				
Aiken	Aiken	565	25	43.1	− 5.2	70	5†	9	30	26	2.20	− 1.27	0.75	0.0	7	21	9	1	nw.	Dr. C. F. McGahan.
Allendale	Barnwell	186	21	44.0	− 3.8	73	6	14	30†	30	3.04	+ 0.26	0.85	0.0	6	17	3	11		A. R. Hiers.
Anderson	Anderson	764	8	38.9	− 5.2	69	4	8	30	34	3.33	− 0.66	1.36	0.0	9	14	1	16	w.	H. H. Russell.
Batesburg	Lexington	656	21	44.4	− 2.2	84	6	8	30	39	3.10	− 0.49	1.07	0.0	8	20	2	9	se.	E. J. Hite.
Beaufort	Beaufort	20	23	45.6	− 6.4	68	5	18	30	27	2.87	+ 0.24	1.22	0.0	6	24	5	2	ne.	Miss Lillian H. Rice.
Bennettsville	Marlboro	151	8																	C. S. McCall.
Blackville	Barnwell	296	21	44.9	− 2.1	77	4	12	29	36	2.74	− 1.00	0.95	0.0	12	12	12	7	nw.	Miss M. E. Lange.
Blairs	Fairfield	293	4								2.84		1.10	0.0	5	19	4	8	nw.	T. S. McMeekin.
Bowman	Orangeburg	160	8	42.9		76	5	11	30	42	2.41		0.65	0.0	6	20	6	5	w.	B. O. Evans.

TABLE 1.—*Climatological data for December, 1909. District No. 2*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
South Carolina—Cont'd.																			
Calhoun Falls	Abbeville	508	16								2.94	− 1.06	0.72	0.0	9	22	0	9	nw.	P. J. Pfiefer.
Camden(1)	Kershaw		3	42.0		70	5†	12	30	33	2.57		1.40	T.	5	18	4	9	nw.	J. B. Mickle.
Camden(2)	Kershaw	222	43								2.28	− 1.05	0.84	T.	8	21	1	9	nw.	J. C. Brown.
Catawba	York	562	4								3.09		1.10	0.0	7	14	6	11	w.	Jas. C. Faris.
Chappells	Newberry	402	4								0.88		0.38	0.0	5	12	11	8	w.	M. C. Rivers.
Charleston	Charleston	48	39	47.2	− 4.1	68	13	18	30	25	1.75	− 1.40	1.03	0.0	8	17	6	8	w.	U. S. Weather Bureau.
Cheraw(1)	Chesterfield	144	21	41.7	− 2.4	78	6	13	30	36	2.26	− 0.91	0.64	T.	8	14	10	7	w.	W. R. Godfrey.
Cheraw(2)	Chesterfield	144	16																	Jno H. Powe.
Clarks Hill	Edgefield	456	7																	Wm. S. Middleton.
Clemson College	Oconee	850	18	39.3	− 2.9	77	8	11	30	45	4.90	+ 0.11	2.06	0.0	6	16	6	9	sw.	Prof. John N. Hook.
Columbia	Richland	351	22	42.6	− 4.6	72	5	13	30	33	2.06	− 0.84	1.05	T.	9	10	11	10	w.	U. S. Weather Bureau.
Conway	Horry	25	17	43.5	− 4.6	74	5†	15	31	37	2.82	− 0.50	1.08	0.0	9	21	0	10	sw.	P. C. Quattlebaum.
Darlington	Darlington	175	14	42.0		75	6	12	30	38	1.84	− 1.43	0.52	T.	8					D. C. McCall.
Dillon	Marion	100	5					14	31		1.66	− 1.96	0.65	0.0	5					A. E. Rowell.
Effingham	Florence	106	17								4.50	+ 1.19	0.95	0.0	5	21	0	10	nw.	H. B. McCall.
Ferguson	Berkeley	51	2								2.60		0.90	0.0	4	21	2	8	nw.	D. B. Gilliland, jr.
Florence	Florence	136	21	43.4	− 0.6	74	5	14	30	32	2.78	− 0.33	0.92	0.0	5	21	2	8	sw.	H. K. Gilbert.
Georgetown	Georgetown	12	16	46.7	− 2.5	73	7	18	30	27	1.86	− 1.95	0.45	0.0	5	17	6	8	nw.	Wm. Alden James.
Greenville	Greenville	989	17	40.5	− 0.1	71	3	9	30	50	4.69	+ 0.18	1.80	2.0	8	18	0	13	ne.	Mrs. S. A. Crittenden.
Greenwood	Greenwood	671	21	39.5	− 3.0	66	5	11	30	26	3.35	− 1.13	1.76	0.0	6	17	0	14	w.	M. M. Calhoun.
Heath Springs	Lancaster	568	8	41.1		70	6	10	30	34	3.11		1.76	0.5	5	16	7	8		J. A. Weaner.
Jacksonboro	Colleton	13	1	45.1		71	5†	16	30	33	2.03		1.17	0.0	5	21	3	7	w.	W. E. Haskell, jr.
Kingstree(1)	Williamsburg	54	15	45.2	− 2.2	78	6	15	31	34	2.20	− 1.06	0.85	0.0	6	18	2	11	n.	J. A. Scott.
Kingstree(2)	Williamsburg	54	21																	A. O. Matthews.
Liberty	Pickens	900	15	39.6	− 3.1	70	4	7	30	37	5.07	+ 0.17	2.10	2.0	7	17	7	7	sw.	Jno T. Boggs.
Little Mountain	Newberry	711	16	42.2	− 3.8	71	5	11	30	31	2.39	− 1.05	0.94	T.	8	18	7	6	w.	Dr. J. M. Sease.
Newberry	Newberry	502	5	41.2	− 3.9	72	5	10	30	34	2.53	− 1.15	0.78	0.0	9	15	5	11	w.	W. G. Peterson.
Pelzer	Anderson	873	4								3.44		1.08	0.0	9	15	6	10	w.	John M. Ward.
Pinopolis	Berkeley	54	16								1.22	− 1.78	0.40	0.0	6					Miss E. P. Ravenel.
St. George	Dorchester	109	21	44.4	− 3.3	73	6	14	30	30	2.20	− 1.09	0.80	0.0	6	25	0	6		G. T. Lewis.
St. Matthews	Calhoun	209	21	42.6	− 3.8	72	5†	12	30	39	2.83	− 0.54	1.34	0.0	7	20	0	11		J. S. Wannamaker.
Saluda	Saluda	530	7	42.1[a]		75[a]	1†	10[a]	30	40[a]	3.01[a]		1.11[a]	0.0	5[a]	17[a]	5[a]	8[a]	sw.	Alvin Etheridge.
Santuc	Union	512	15	39.6	− 3.6	69	5	10	30	33	2.79	− 1.31	1.41	T.	7	14	6	11	w.	E. W. Jeter.
Smith Mills	Williamsburg	62	14								4.13	− 0.23	1.18	0.0	8	22	0	9	n.	W. G. Walker.
Society Hill	Darlington	192	18	40.5	− 5.1	70	7	14	29	34	2.18	− 1.03	0.78	0.0	6	19	4	8		J. J. Lucas.
Spartanburg	Spartanburg	875	18	38.5	− 3.7	71	4	11	30	36	3.23	− 0.97	1.59	0.0	8	18	0	13		F. P. Robinson.
Summerville	Dorchester	75	12	45.8	− 2.6	76	3	15	30	36	2.71	− 1.04	0.92	0.0	7	10	18	3	sw.	Miss E. H. Gadsden.
Trenton	Edgefield	620	16	42.6	− 4.5	73	6	9	30	34	2.66	− 1.47	0.96	0.0	7	16	11	4	w.	C. A. Long.
Trial	Berkeley	83	23	45.3	− 2.9	78	3	15	31	39	2.20	− 0.89	0.75	0.0	9	11	14	6	nw.	Etsell Gaillard
Walhalla	Oconee	1,061	18	39.2	− 4.1	69	4	8	30	35	4.86	+ 0.47	1.80	T.	7	13	7	11	sw.	N. L. Fant.
Walterboro	Colleton	69	5	46.3[b]		78	6	15	30	38	2.82		1.15	0.0	6	19	8	4		J. A. Westerberg.
Winnsboro	Fairfield	545	20																	John W. Seigler.
Winthrop College	York	690	10	40.3		69	4†	10	30	32	2.60		1.62	T.	6	18	6	7	sw.	E. R. Rivers.
Yemassee	Hampton	23	14	44.9	− 2.9	74	6	15	30	35	2.67	− 0.95	0.86	0.0	10	23	0	8		J. G. Hutson.
Georgia.																				
Abbeville	Wilcox		6								3.61		0.90	0.0	8				n.	W. H. Calhoun.
Adairsville	Bartow	772	17	36.6[b]	− 5.6	68	3†	10	30	32[b]	4.89	+ 0.03	2.52	2.0	8	12	9	10		Dr. J. P. Bowdoin.
Albany	Dougherty	230	24	47.6	− 4.0	80	5†	14	30	37	3.67	− 0.19	0.97	0.0	12				nw.	Geo C. Brosnan.
Alapaha	Berrien	293	20	49.1	− 1.9	79	5	15	30	40	2.41	− 1.40	1.02	0.0	5				w.	Miss Gladys Lucas.
Americus	Sumter	362	26																	L. A. Smith.
Athens	Clarke	694	32	38.1	− 5.7	66	4	12	30	27	3.42	− 1.60	1.25	0.0	8				w	C. D. Cox.
Atlanta	Fulton	1,218	44	38.2	− 5.9	71	4	10	30	30	3.51	− 0.98	1.12	T.	9	13	5	13	w.	U. S. Weather Bureau.
Augusta	Richmond	180	43	43.0	− 4.5	71	5	13	30	31	1.98	− 1.51	0.72	0.0	10	13	9	9	w.	U. S. Weather Bureau.
Bainbridge	Decatur	119	17	48.2	− 2.6	78	5	18	30†	38	6.06	+ 1.82	1.31	0.0	12				s.	Mrs. C. O. Wimberley.
Barnesville	Pike	875	1	41.8		71	4	10	30	32	3.02		0.95	0.0	10					Prof. J. R. Leavell.
Blakely	Early	300	18	45.8	− 5.1	75	4	11	30	39	3.71	− 0.28	1.18	0.0	11	12	14	5	n.	Ralph M. Hobbs.
Brunswick	Glynn	14	11																	J. B. High.
Butler	Taylor	650	7								2.85		1.02	0.0	6				w.	Mrs. Mamie F. Wallace.
Camak	Warren	613	16	42.6	− 3.1	72	4	10	30	40	2.35	− 2.09	0.80	0.0	4					J. A. Chapman.
Canton	Cherokee	894	16																	J. M. McAfee.
Carlton	Madison	557	10								2.48		0.87	0.0	8				w.	M. C. Power.
Carrollton	Carroll		12																	Prof. J. H. Melson.
Clayton	Rabun	2,100	16	37.4	− 4.3	71	4	6	30	36	7.54	+ 0.98	3.10	3.0	7	19	5	7	w.	A. J. Duncan.
Columbus	Muscogee	262	22								2.75	− 2.36		0.0	10					J. W. Long.
Covington	Newton	800	16								3.64	− 0.86	1.23	0.0	7				ne.	Rufus Cruse.
Cuthbert	Randolph	446	10	46.8[b]		75	3†	10	30	38	4.74		2.10	0.0	6					Prof. W. McMichaels.
Dahlonega	Lumpkin	1,519	17	37.2	− 4.9	70	4	7	30	32	5.25	+ 1.30	2.40	1.5	9	16	7	8	nw.	Prof. B. P. Gaillard
Diamond	Gilmer	2,020	19	35.2[a]	− 6.4	69	4	7	30	29	6.79	+ 2.30	3.45	7.0	10	13	7	11		R. A. Kimsey.
Douglas	Coffee	500	2																	Prof. C. W. Davis.
Dublin	Laurens	452	15								3.44	− 0.42	1.00	0.0	10					Mrs. M. E. Martin.
Dudley	Laurens		7	45.2		74	5	12	30	33	2.41		0.87	0.0	7	17	8	6	w.	J. H. M. O'Sullivan.
Eastman	Dodge	361	18	45.8[a]	− 2.8	78	4	13	30	33	3.37	− 0.44	1.32	0.0	6				nw.	Miss A. M. Bohannon
Eatonton	Putnam		6	40.6[a]		70	4†	9	30	38	2.37		0.62	0.0	7					Prof. W. C. Wright.
Elberton	Elbert	710	18	41.1	− 4.2	66	4	9	30	30	2.91	− 1.51	1.05	0.0	8	19	7	5	w.	H. A. Roebuck.
Experiment	Spalding	946	9	40.5		71	4	8	30	30	2.65		0.50	0.0	9	10	14	7		Martin V. Calvin.
Fitzgerald	Ben Hill	515	11																	W. C. Wilkerson.
Forsyth	Monroe	735	27	43.8	− 5.8	71	4	11	30	39	3.20	− 1.21	1.00	0.0	6					Miss S. A. B. Gibson.
Fort Gaines	Clay	166	22	44.9	− 5.1	77	4	14	30	38	4.63	− 0.07	1.50	0.0	10				nw.	Mrs. Eva T. Graham
Gainesville	Hall	1,254	33	35.0	− 7.4	62	5	10	30†	32	4.77	− 0.07	1.60	T.	7				w.	W. C. Walker.
Gillsville	Hall	1,052	19	38.9	− 6.5	69	4	10	30	27	5.05	+ 1.05	2.00	T.	8	13	6	12	w.	J. W. Casey.
Glennville	Tattnall		4	45.8		74	5	15	30	36	2.90		1.09	0.0	8	18	8	5	nw.	Wm. C. Barnard.
Gore	Chattooga		11	37.6	− 4.2	73	4	10	30	33	6.15	+ 0.19	3.12	1.5	9	14	5	12	sw.	H. M. Ponder.
Greensboro	Greene	598	7	41.3		68	5	18	30	35	2.83		1.10	0.0	7				w.	R. L. Caldwell.
Griffin	Spalding	975	20	39.4	− 5.6	73	4	9	30	34	3.03	− 2.19	0.77	0.0	7				nw.	V. P. Enloe.
Harrison	Washington	245	11	43.0	− 4.3	75	4	11	30	41	2.85	− 1.25	1.02	0.0	7	19	4	8	nw.	A. W. J. Wood.
Hartwell	Hart	838	1	39.4		68	5	10	30	28	4.08		1.37	T.	7	23	1	7	sw.	Dr. W. I. Hailey.
Hawkinsville	Pulaski	235	14	44.4[a]	− 3.0	76	5	13	30	41	2.52	− 1.24	0.90	0.0	7	13	9	10	nw.	R. H. Wood.
Helena	Telfair	260	2	47.0		76	5	13	30	34	2.54		0.99	0.0	8	9	9	13	w.	James D. Smith.
LaFayette	Walker	871	3	35.4		69	1	7	30	31	5.92		2.75	2.1	7	11	5	15	nw.	Ralph A. Snow.
Lisbon	Lincoln		3	41.8		69	5	12	30	43	3.60		1.26	0.0	7	10	1	20	nw.	B. J. DuBose.
Lost Mountain	Cobb		9	36.8		70	4	9	30	32	5.06		3.00	1.0	6	2	19	10	n.	A. N. Mayes.
Louisville	Jefferson	259	17	44.2	− 3.7	71	5†	13	30	28	2.66	− 0.57	0.96	0.0	4	17	9	5		J. C. Little.
Lumber City	Telfair		1								2.31		0.68	0.0	9				w.	Walter A. Hilton.
Lumpkin	Stewart	650	16	46.6	− 2.5	76	3†	12	30	33	3.92	− 0.80	1.08	0.0	7	13	11	7	nw.	A. W. Latimer.
Macon	Bibb	370	32	42.1	− 4.7	70	5	14	30	33	2.14	− 2.27	0.67	T.	9	15	4	12	nw.	U. S. Weather Bureau.
Marshallville	Macon	500	17	43.2[a]	− 5.4	71	4	9	30	38	2.60	− 1.87	0.75	0.0	6	13	11	7	e.	E. C. Bryan.
Mauzy	Colquitt		11	49.7	− 2.6	81	5	16	30	40	3.88	− 0.39	1.33	0.0	9	20	4	7	nw.	T. J. Hudson.

TABLE 1.—*Climatological data for December, 1909. District No. 2*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Georgia—Cont'd.																				
Milledgeville	Baldwin	276	21	42.0[a]	− 4.5	70	5	14	30	35	2.78	− 1.34	0.65	0.0	8	14	4	13	nw.	Prof. O. M. Cone.
Millen	Jenkins	158	22	44.8	− 3.9	76	3	12	30	38	3.00	− 0.35	1.10	0.0	5	.....	.....	.....	nw.	M. G. McComb.
Montezuma	Macon	292	4	.....	.....	.....	.....	.....	.....	.....	2.54	.....	0.66	0.0	7	.....	.....	.....	nw.	W. N. Drewry.
Monticello	Jasper	800	13	41.6	− 6.2	73	4	11	30	39	3.06	− 0.94	1.09	0.0	6	.....	.....	.....	.....	Miss Maud C. Penn.
Morgan	Calhoun	337	17	45.1	− 4.2	74	5	15	30	34	2.07	− 1.99	0.41	0.0	10	30	1	0	.....	J. J. Beck.
Newnan	Coweta	959	21	40.2	− 2.7	73	4	9	30	38	3.38	− 1.57	1.52	0.0	5	.....	.....	.....	nw.	Mrs. I. J. Milner.
Oakdale	Fulton	810	9	.....	.....	.....	.....	.....	.....	.....	4.35	.....	1.43	0.0	4	.....	.....	.....	nw.	W. R. B. Whittier.
Point Peter	Oglethorpe	1,000	20	40.5	− 3.4	68	4	11	30	29	3.22	− 0.92	0.90	0.0	8	15	8	8	w.	C. M. Witcher.
Poulan	Worth	365	18	47.2	− 3.0	81	5	13	30	41	3.52	− 0.06	0.83	0.0	10	13	8	10	.....	Dr. J. F. Wilson.
Putnam	Marion	.....	10	44.4[e]	− 3.7	79	3	10	30	41	3.33	− 1.68	1.20	0.0	6	.....	.....	.....	w.	Mrs. J. M. Collum.
Quitman	Brooks	173	25	49.4	− 3.1	81	1	17	30	41	3.45	− 1.03	1.30	0.0	6	.....	.....	.....	ne.	A. B. Jones.
Ramsey	Murray	1,363	16	39.2	− 5.1	68	4	10	30	29	3.76	− 1.09	1.70	1.0	7	14	6	11	n.	D. E. Humphreys.
Resaca	Gordon	657	16	.....	.....	.....	.....	.....	.....	.....	4.95	+ 0.01	2.40	2.0	5	.....	.....	.....	n.	D. A. Norton.
Rome	Floyd	576	54	36.4	− 8.0	68	3	9	30	32	5.16	+ 0.59	2.10	3.0	8	.....	.....	.....	w.	W. M. Towers.
St. George	Charlton	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John Harris.
St. Mary's	Camden	20	18	51.0	− 2.0	79	5†	16	30	43	2.87	− 0.34	0.84	0.0	8	17	7	7	nw.	David C. Sterling.
Savannah	Chatham	65	59	47.6	− 3.7	72	5†	17	30	27	1.82	− 1.28	0.94	0.0	8	16	6	9	w.	U. S. Weather Bureau.
Statesboro	Bullock	253	9	46.4	.....	75	6	14	30	34	2.89	.....	1.10	0.0	7	11	17	3	.....	J. C. Cromley.
Talbotton	Talbot	750	16	42.8[b]	− 4.3	70	4	10	30	38	3.43	− 1.26	0.80	0.0	8	17	5	9	nw.	Dr. W. T. Dennis.
Tallapoosa	Haralson	1,150	11	38.4	− 4.9	77	5	8	30	40	3.25	− 0.64	1.75	T.	2	.....	.....	.....	nw.	R. M. Strickland.
Thomasville	Thomas	273	26	47.5	− 5.5	77	5	17	30	37	4.19	+ 0.50	1.23	0.0	11	18	5	8	nw.	U. S. Weather Bureau.
Toccoa	Stephens	1,050	24	36.4	− 6.6	68	4	5	30	41	6.09	+ 0.89	2.01	T.	6	.....	.....	.....	w.	E. A. Newton.
Valdosta	Lowndes	219	4	48.2	.....	80	5	16	30	41	2.99	.....	0.92	0.0	6	.....	.....	.....	e.	Miss Annie L. Twitty.
Valona	McIntosh	10	9	47.0	.....	77	5	15	30	41	2.33	.....	1.40	0.0	4	24	4	3	sw.	J. M. Atwood.
Washington	Wilkes	630	22	40.4	− 4.4	71	5	10	30	37	3.73	− 0.19	1.05	0.0	8	.....	.....	.....	ne.	Miss Ella B. Smith.
Waycross	Ware	131	20	47.5	− 3.9	78	5	16	30	38	2.39	− 0.32	0.91	0.0	10	.....	.....	.....	ne.	Thos. Sasser.
Waynesboro	Burke	86	18	46.1	− 1.5	73	4	13	30†	41	2.35	− 0.87	1.28	0.0	7	.....	.....	.....	nw.	Mrs. H. W. Blount.
West Point	Troup	620	21	40.2	− 5.9	68	4	11	30	33	4.26	− 1.23	1.94	0.0	9	.....	.....	.....	nw.	E. N. Dunn.
Woodbury	Meriwether	641	9	40.8	.....	69	3	10	30	44	2.98	.....	0.81	0.0	8	11	4	16	w.	G. A. Wright.
Alabama.																				
Alaga	Houston	105	4	.....	.....	.....	.....	.....	.....	.....	4.62	.....	1.48	0.0	11	18	0	13	n.	James L. Willis.
Anniston	Calhoun	741	18	39.0	− 5.2	73	4	9	30	33	5.56	+ 1.02	2.26	0.3	12	11	7	13	n.	U. S. Weather Bureau.
Ashville	St. Clair	685	16	38.5	− 5.0	68	4	10	30	31	5.25	+ 0.11	1.42	3.0	9	14	6	11	nw.	George R. Cather.
Auburn	Lee	732	20	42.2[a]	− 5.1	72[a]	4	10[a]	30	33	5.03	− 0.11	2.22	0.0	9	13	3	15	nw.	James T. Anderson.
Benton	Lowndes	149	8	.....	.....	.....	.....	.....	.....	.....	6.89	.....	1.30	0.0	10	16	5	10	nw.	S. T. Pruitt.
Bermuda	Conecuh	.....	22	44.4	− 5.3	75	3	14	30	39	9.24	+ 4.71	3.79	0.0	8	15	3	13	n.	M. J. Morris.
Birmingham	Jefferson	700	21	39.9	− 7.4	71	4	12	30	33	4.41	− 0.19	1.47	3.1	15	9	8	14	n.	U. S. Weather Bureau.
Boligee	Greene	119	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Guy P. Brugh.
Calera	Shelby	500	8	.....	.....	.....	.....	.....	.....	.....	4.16	.....	1.15	0.0	7	9	5	17	ne.	L. G. Privett.
Camp Hill	Tallapoosa	738	8	42.4	.....	74	4	10	30	34	2.42	.....	1.25	0.0	9	17	3	11	nw.	Dr. Lyman Ward.
Cedar Bluff	Cherokee	594	5	.....	.....	.....	.....	.....	.....	.....	3.95	.....	1.65	1.5	4	2	24	5	.....	Joe L. Daniel.
Citronelle	Mobile	331	21	47.0	− 6.0	76	6	16	30	30	8.97	+ 4.32	2.08	0.0	12	18	6	7	nw.	George A. Maloney.
Clanton	Chilton	590	16	41.4[a]	− 4.9	71[a]	4	13[a]	30	34	4.97	+ 0.59	1.36	0.0	10	10	1	20	nw.	Wallace C. Edler.
Cordova	Walker	334	15	39.7[b]	− 4.4	75[b]	5	8[b]	30	38[b]	4.29	− 0.72	1.35	2.0	7	14	7	10	n.	Scott Maxwell.
Cullman	Cullman	802	2	37.1	.....	75	4	8	30	38	4.93	.....	2.30	1.4	10	13	5	13	nw.	Eugene A. Grayot.
Dadeville	Tallapoosa	760	4	.....	.....	.....	.....	.....	.....	.....	5.13	.....	2.05	0.0	8	15	0	16	w.	Dr. W. B. Fulton.
Daphne	Baldwin	.....	18	48.9[b]	− 4.1	78[b]	4	17[b]	30	32[b]	6.61	+ 1.71	2.80	0.0	11	19	1	11	nw.	John H. Young.
Demopolis	Marengo	.....	17	.....	.....	.....	.....	.....	.....	.....	5.96	+ 1.21	1.50	0.0	10	17	3	11	nw.	George E. Pegram.
Double Springs	Winston	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Charles D. Hudgins.
Eufaula	Barbour	200	25	42.2	− 6.1	70	2†	13	30	35	4.08	− 0.52	1.60	0.0	11	15	7	9	nw.	Dr. J. B. Whitlock.
Evergreen	Conecuh	285	25	46.3	− 3.5	82	5	14	30	36	6.42	+ 2.62	2.00	0.0	7	19	0	12	n.	Robert L. Whitcomb.
Fayette	Fayette	359	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. V. Burns.
Flomaton	Escambia	91	7	46.0	− 5.7	80	2†	16	30	40	4.28	− 0.66	2.00	0.0	10	19	0	12	s.	T. J. Farris.
Fort Deposit	Lowndes	520	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. L. Parish.
Gadsden	Etowah	621	15	39.7	− 4.7	70	4	12	30	31	5.04	− 0.03	1.56	1.8	8	11	4	16	nw.	D. P. Goodhue.
Goodwater	Coosa	826	23	43.6	− 0.9	80	1†	10	30	49	5.24	+ 0.92	1.92	0.0	3	25	0	6	nw.	D. S. Brown.
Greensboro	Hale	220	30	42.4	− 6.3	68	2†	16	30	29	4.82	− 0.09	0.88	0.0	10	16	3	12	n.	W. E. W. Yerby.
Greenville	Butler	444	8	.....	.....	.....	.....	.....	.....	.....	5.21	.....	2.16	0.0	9	17	0	14	se.	E. M. Lewis.
Hamilton	Marion	.....	13	39.2[b]	− 5.2	75[b]	4	9[b]	30	36[b]	3.60	− 1.35	1.08	2.1	10	13	2	16	n.	Prof. H. O. Sargent.
Highland Home	Crenshaw	.....	17	44.4	− 5.0	75	4	14	30	34	5.71	+ 1.08	1.69	0.0	12	16	6	9	nw.	Prof. Samuel Jordan.
Livingston	Sumter	160	25	39.3	− 7.4	68	4	13	30	42	4.45	− 0.01	1.63	0.0	5	22	0	9	n.	Robert L. King.
Lock No 4	Talladega	510	12	39.4	− 4.4	70	4	10	30	35	4.71	− 0.05	1.40	1.0	11	15	0	16	nw.	U. S. Engineers.
Lucy	Houston	.....	4	48.2	.....	78	4	12	30	46	5.10	.....	1.64	0.0	11	13	8	10	.....	A. L. Crosby.
Maple Grove	Cherokee	.....	16	37.2	− 5.3	72	4	12	29	33	5.30	+ 0.10	1.80	2.0	6	9	13	9	nw.	Mrs. A. L. Awbrey.
Mentone	De Kalb	1,595	2	.....	.....	.....	.....	.....	.....	.....	4.41	.....	2.40	2.2	4	16	2	13	nw.	E. Mason.
Milstead	Macon	.....	6	.....	.....	.....	.....	.....	.....	.....	5.50	.....	1.55	0.0	12	15	4	12	e.	Evie Oswalt.
Mobile	Mobile	57	37	48.6	− 2.9	73	2	22	30	30	7.50	+ 2.93	3.42	0.0	14	15	11	5	nw.	U. S. Weather Bureau.
Montgomery	Montgomery	223	37	43.5	− 5.6	70	4	18	30	32	5.78	+ 1.28	1.75	0.0	13	12	6	13	nw.	U. S. Weather Bureau.
Newbern	Hale	.....	16	42.4	− 5.0	74	4	13	30	38	5.04	+ 0.64	1.16	0.0	10	10	11	10	n.	Dr. J. Huggins.
Oneonta	Blount	857	15	35.6	− 7.3	71	4	6	30	35	4.35	− 0.73	1.36	3.0	12	15	14	2	w.	Aquilla J. Ketchum.
Opelika	Lee	817	30	41.6	− 5.3	72	4	10	30	33	5.05	+ 0.10	2.05	0.0	8	14	1	16	w.	A. H. Read, Jr.
Ozark	Dale	400	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Miss Lucy Sellers.
Prattville	Autauga	381	9	42.2	.....	70	4	11	30	36	5.62	.....	2.30	0.0	11	13	9	9	n.	Jos. B. Bell.
Pushmataha	Choctaw	.....	18	40.4	− 7.9	78	4	13	30	44	6.02	+ 1.27	1.15	0.0	9	19	3	9	nw.	E. A. Carr.
Selma	Dallas	147	29	40.4	− 6.7	73	2	11	30	40	5.34	+ 0.79	1.32	0.0	9	10	8	13	nw.	Charles F. Brislin.
Spring Hill	Mobile	312	5	48.2	.....	76	3	19	30	42	10.94	.....	4.03	0.0	14	17	8	6	n.	Rev. J. B. Franckhauser.
Talladega	Talladega	554	19	41.4[c]	− 3.8	72[c]	4	15[c]	21	36[c]	4.32	+ 0.02	1.62	0.0	15	12	9	10	n.	Ross Bartholomew.
Tallassee	Elmore	.....	18	.....	.....	.....	.....	.....	.....	.....	5.43	+ 0.21	2.18	0.0	11	13	3	15	n.	P. A. Noble.
Thomasville	Clarke	385	18	41.7	− 7.1	74	2†	13	30	41	4.46	+ 0.98	1.10	0.0	7	17	2	12	n.	J. G. Forster.
Troy	Pike	552	1	45.5	.....	79	4	13	30	36	4.93	.....	1.52	0.0	10	14	13	4	nw.	C. S. Tutwiler.
Tuscaloosa	Tuscaloosa	230	28	39.3	− 7.2	76	4	14	30†	39	7.70	+ 2.76	2.00	T.	11	15	0	16	n.	W. S. Wyman.
Tuskegee	Macon	.....	9	44.8	.....	76	4	14	30	36	5.89	.....	2.45	0.0	8	10	13	8	n.	Prof. Geo. W. Carver.
Union Springs	Bullock	216	22	42.7	− 5.0	69	2†	14	30	33	5.57	+ 0.67	1.35	0.0	9	13	13	5	nw.	P. L. Cowan.
Uniontown	Perry	273	23	42.9	− 6.4	71	2	14	30	36	4.55	+ 0.30	0.96	0.0	10	15	7	9	nw.	F. D. Stevens.
Valley Head	De Kalb	1,031	24	35.6	− 6.1	73	4	6	30	39	4.11	− 0.76	1.58	4.0	9	17	6	8	n.	Dr. E. P. Nicholson.
Vienna	Pickens	590	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. L. Boone.
Wetumpka	Elmore	205	17	44.4	− 3.3	73	4	13	30	37	5.09	+ 0.30	1.45	0.0	7	12	0	19	n.	U. S. Engineers.
Florida.																				
Apalachicola	Franklin	24	5	52.6	.....	74	5	24	30	33	6.44	.....	2.00	0.0	5	18	4	9	n.	G. A. Whiteside.
Arcadia	DeSoto	61	8	60.8	.....	88	20	22	31	40	1.85	.....	0.65	0.0	9	18	7	6	e.	C. S. Bushnell.
Archer	Alachua	92	24	55.0	− 2.4	81	5	19	31	41	4.42	+ 1.21	1.80	0.0	8	.....	.....	.....	.....	R. B. Hodgson.
Avon Park	DeSoto	150	11	60.9	− 1.5	86	3†	25	31	38	1.58	− 0.71	0.40	0.0	10	21	4	6	.....	O. R. Thacher.
Bartow	Polk	115	13	56.8	− 4.7	83	19	22	31	43	2.41	+ 0.06	0.93	0.0	11	14	13	4	ne.	Wm. Hood.
Blountstown	Calhoun	.....	2	49.0	.....	78[a]	1†	20	30	36	6.41	.....	1.98	0.0	8	20	5	6	s.	C. L. Hobbs.
Bonifay	Holmes	111	8	49.6	.....	76	4	17	30	38	6.47	.....	2.45	.....	7	12	7	12	nw.	Wm. Rush.
Brooksville	Hernando	126	17	58.3[a]	− 0.7	86	6	22[b]	30	37	2.30	− 0.05	0.65	0.0	6	14	8	9	nw.	C. C. Peck.
Carrabelle	Franklin	10	13	.....	.....	.....	.....	18	30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. J. Blomquist.

TABLE 1.—*Climatological data for December, 1909. District No. 2*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Florida—Cont'd.																			
Cedar Keys	Levy	10	12	55.3	− 3.3	73	5	23	30	25	3.23	+ 0.11	2.00	0.0	6	23	5	3	nw.	J. B. Lutterloh.
Clermont	Lake	105	16	58.6	− 2.5	82	5	25	30	35	0.84	− 1.71	0.30	0.0	5	15	16	0	n.	S. S. Fesler.
DeFuniak Springs	Walton	193	14	50.2[a]	− 1.7	80[a]	1†	17[a]	30	37	7.91	+ 2.81	1.78	0.0	11	19	5	7	n.	R. W. Storrs.
DeLand	Volusia	27	13	55.1	− 3.4	81	19	19	31	44	1.15	.....	0.42	0.0	8	21	3	7	.....	O. B. Webster.
Eustis	Lake	56	17	56.7	− 3.2	82[a]	4	22	30	39	1.52	− 0.80	0.52	0.0	7	21	3	7	nw.	C. T. Smith.
Federal Point	Putnam	5	17	54.4	− 2.7	79	5	22	30	39	1.35	− 1.39	0.33	0.0	11	20	6	5	nw.	E. S. Hubbard.
Fenholloway	Taylor	75	3	49.8	.....	79	5	17	31	42	2.75	.....	0.79	0.0	5	.....	.....	.....	.....	J. Wigglesworth.
Fernandina	Nassau	10	12	52.5	− 4.0	75	6	19	30	31	2.90	− 0.45	1.20	0.0	12	14	9	8	nw.	W. B. C. Duryee.
Flamingo	Monroe	4	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. R. Bradley.
Fort Meade	Polk	125	17	58.4	− 1.5	83	5	21	31	43	2.20	− 0.23	0.77	0.0	9	19	3	9	ne.	G. L. Brodrick.
Fort Myers	Lee	12	17	61.2	− 3.3	79	5	31	31	27	1.10	− 0.67	0.48	0.0	7	21	9	1	ne.	M. M. Gardner.
Fort Pierce	St. Lucie	6	8	62.0	.....	82	3	28	30	37	2.20	− 0.03	1.12	0.0	7	17	8	6	nw.	R. L. Goodwin.
Gainesville	Alachua	176	23	.....	.....	.....	.....	19	30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. P. H. Bell.
Grasmere	Orange	175	13	56.1	− 3.3	80	3†	21	30	39	1.18	.....	0.49	0.0	8	24	4	3	ne.	J. B. Escott.
Hilliard	Nassau	60	1	49.4	.....	85	5	17	30	40	0.14	.....	0.05	0.0	5	17	7	7	.....	D. W. Griffing.
Huntington	Putnam	56	12	52.4[b]	− 5.0	79[b]	5	19[b]	31	44	1.18	− 1.35	0.54	0.0	7	.....	.....	.....	nw.	E. C. Walker.
Hypoluxo	Palm Beach	4	9	65.4	− 2.6	87	20	31	27	37	1.22	− 0.99	0.57	0.0	5	18	11	2	ne.	G. A. Angervine.
Inverness	Citrus	43	8	53.6	.....	80	18	31	42	42	2.83	+ 0.40	0.86	0.0	7	11	13	7	sw.	W. H. Miller.
Jacksonville	Duval	101	37	51.4	− 3.8	75	5	19	30	29	2.30	− 0.09	1.20	0.0	9	16	8	7	nw.	U. S. Weather Bureau.
Jasper	Hamilton	152	11	49.1	− 2.8	82	5	20	30†	53	.....	.....	.....	.....	.....	.....	.....	.....	ne.	G. W. Duncan.
Johnstown	Bradford	125	14	51.6	− 3.1	80	5†	18	30	44	2.51	− 0.79	0.81	0.0	9	21	4	6	.....	A. M. C. Brasch.
Jupiter	Palm Beach	34	21	63.8	− 2.5	82	20	30	30	28	0.99	− 1.88	0.33	0.0	8	9	15	7	nw.	U. S. Weather Bureau.
Key West	Monroe	14	38	69.2	− 0.9	81	10	48	30	15	1.61	− 0.23	1.12	0.0	9	13	16	2	ne.	U. S. Weather Bureau.
Kissimee	Osceola	65	17	58.2	− 2.8	81	19	24	31	39	1.43	− 1.19	0.62	0.0	5	15	15	1	ne.	J. A. Simpson.
Lake City	Columbia	210	20	51.1	− 5.1	80	5	16	30	43	3.65	+ 0.41	1.20	0.0	9	17	5	9	nw.	W. B. Knight.
Live Oak	Suwanee	109	8	50.2	.....	79	6	17	30	38	3.24	+ 0.90	0.92	0.0	6	19	0	12	w.	D. O. Henry.
Macclenny	Baker	125	13	50.6[c]	− 4.0	79[c]	5	18[c]	30†	42	3.02	− 0.18	1.20	0.0	9	.....	.....	.....	nw.	Griffing Bros. Co.
Madison	Madison	200	6	48.4	.....	79	5	16	30	41	3.60	− 0.43	0.96	0.0	12	14	5	12	ne.	E. J. Vann.
Malabar	Brevard	24	8	60.0[a]	.....	84[a]	3	24[a]	31	39	1.38	..	0.38	0.0	8	.....	.....	.....	nw.	J. F. Farley.
Manatee	Manatee	8	17	58.9	− 4.9	80	3	29	31	36	2.44	+ 0.07	0.75	0.0	7	13	12	6	n.	F. C. Whitaker.
Marianna	Jackson	80	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. L. Behymer.
Merritt's Island	Brevard	20	30	59.3	− 3.9	79	3	28	30	30	1.03	− 1.49	0.66	0.0	6	20	4	7	ne.	C. D. Provost.
Miami	Dade	5	13	67.0	− 1.7	85	19	33	30	32	1.20	− 1.03	1.20	0.0	1	25	6	0	nw.	E. V. Blackman.
Middleburg	Clay	10	8	50.8[f]	.....	79[f]	6	18[f]	30	41	2.05	.....	1.35	0.0	3	.....	.....	.....	.....	G. A. Chalker.
Molino	Escambia	49	8	47.8	.....	81	3	16	30	42	9.81	.....	4.83	0.0	7	20	0	11	n.	W. H. Trimmer.
Monticello	Jefferson	207	4	50.4	.....	76	5	18	30	34	4.00	.....	1.34	0.0	7	21	4	6	ne.	E. C. Potter.
Mt. Pleasant	Gadsden	260	5	.....	.....	76[e]	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Miss A. Grubb.
Newport	Wakulla	.....	8	49.6	− 4.2	77	1	18	31	47	6.19	+ 1.21	1.42	0.0	5	.....	.....	.....	nw.	J. W. Ladd.
New Smyrna	Volusia	9	21	57.2	− 2.9	81	7	25	30	47	1.29	− 1.30	0.64	0.0	6	.....	.....	.....	.....	F. Nordman.
Ocala	Marion	98	22	55.4	− 2.6	82	5†	19	31	40	1.97	− 0.40	0.69	0.0	6	21	5	5	.....	F. T. Schreiber.
Orange City	Volusia	39	19	.....	.....	.....	.....	18	31	.....	1.28	− 0.80	0.55	0.0	4	20	6	5	w.	J. D. Graham.
Orlando	Orange	111	17	57.8	− 2.6	81	5	21	31	43	0.67	− 1.40	0.25	0.0	5	17	6	8	nw.	James Thomson.
Pensacola	Escambia	149	31	50.2	− 3.7	74	2	21	30	30	8.55	+ 4.38	2.76	0.0	16	15	7	9	n.	U. S. Weather Bureau.
Plant City	Hillsboro	121	17	56.5[c]	− 4.3	80[c]	19	22[c]	31	43	1.62	− 0.68	0.70	0.0	7	.....	.....	.....	.....	E. B. Trask.
Rockledge	Brevard	28	1	50.0	.....	80	3†	29	31	32	0.42	.....	0.26	0.0	2	21	4	6	n.	J. H. White.
Rockwell	Marion	10	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dunellon Phos. Co.
St. Andrew	Huntington	14	14	49.8	− 3.2	75	5†	20	30	34	7.07	+ 1.80	1.85	0.0	11	23	4	4	n.	W. A. Emmons.
St. Augustine	St. Johns	10	59	54.0	− 3.6	79	4	19	30	37	1.26	− 1.25	0.38	0.0	7	14	8	9	ne.	J. R. Palmer.
Sand Key	Monroe	46	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Weather Bureau.
St. Leo	Pasco	140	14	56.8	− 3.0	80	4†	22	31	40	2.66	− 0.10	0.77	0.0	10	16	8	7	w.	G. Schneider.
Satsuma Heights	Putnam	98	1	51.8	.....	77	7	19[a]	31	37	1.38	.....	0.35	0.0	7	15	13	3	.....	Satsuma Co.
Switzerland	St. Johns	10	13	52.9[b]	− 2.3	78[b]	5†	21[b]	30†	37	1.65	− 1.30	0.68	0.0	6	.....	.....	.....	.....	W. C. Steele.
Tallahassee	Leon	192	24	47.8	− 5.2	72	5	18	30	35	4.65	+ 0.08	1.40	0.0	8	18	5	8	n.	W. H. Markham.
Tampa	Hillsboro	79	19	57.6	− 1.9	80	5	26	31	29	1.06	− 0.96	0.36	0.0	9	15	9	7	nw.	U. S. Weather Bureau.
Tarpon Springs	Hillsboro	20	16	57.6	− 2.2	82	5	23	31	36	2.26	− 0.02	0.57	0.0	7	18	8	5	n.	A. P. Albaugh.
Titusville	Brevard	6	17	60.2[b]	− 1.5	86[c]	19	24	30	46	0.65	− 2.33	0.24	0.0	7	8	15	8	w.	F. M. Taylor.
Wausau	Washington	250	12	50.0[c]	− 2.4	73[f]	7†	16	30	45	7.45	+ 2.37	2.08	0.0	10	13	9	9	n.	C. Jones.
Mississippi.																				
Aberdeen	Monroe	210	21	38.2	− 4.6	75	4	13	30	38	4.89	− 0.22	1.28	3.0	9	18	3	10	n.	L. D. Godfrey, jr.
Agricultural College	Oktibbeha	424	19	39.9[f]	− 7.1	73[f]	4	12[c]	30	32[f]	4.72	+ 0.20	1.55	8	.....	.....	.....	.....	n.	Prof. W. R. Perkins.
Bay St Louis	Hancock	28	16	48.7	− 3.6	75	2	24	30	28	7.32	+ 2.16	2.18	0.0	14	12	7	12	n.	Brother Stanislaus.
Biloxi	Harrison	24	18	49.4[a]	− 2.7	73[a]	3†	23[a]	30	29[a]	5.32	+ 0.15	3.06	0.0	13	14	5	11	nw.	Miss M. Josie Pope.
Booneville	Prentiss	504	15	36.2	− 8.4	71	4	13	21	31	5.14	+ 0.05	1.04	6.2	11	14	8	9	n.	Dr. D. T. Price.
Brookhaven	Lincoln	500	21	42.4	− 7.9	78	4	10	19	45	4.63	− 0.38	1.04	0.0	10	19	1	11	n.	W. J. Bee.
Columbia	Maroon	100	5	.....	.....	.....	.....	.....	.....	.....	5.64	.....	1.78	0.0	10	15	4	12	nw.	N. R. Drummond.
Columbus	Lowndes	250	21	.....	.....	.....	.....	12	30	.....	6.10	+ 1.02	1.75	2.4	11	16	3	12	nw.	J. B. Love.
Crystal Springs	Copiah	468	17	41.9	− 6.5	77	5	17	30	36	3.38	− 2.15	1.10	0.0	8	19	8	4	.....	D. H. Miller.
Edinburg	Leake	.....	1	41.6	.....	76	4	13	30	39	4.66	.....	1.35	0.0	12	16	4	11	n.	J. Y. Blocker.
Enterprise	Clarke	248	4	.....	.....	.....	.....	.....	.....	.....	5.90	.....	1.10	0.0	9	13	2	16	nw.	J. B. Thompson.
Fulton	Itawamba	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.78	.....	1.50	0.0	9	14	2	15	n.	A. L. Summers.
Hattiesburg	Forest	154	16	46.7	− 4.4	80	2†	18	30	42	6.40	+ 1.88	2.60	0.0	9	12	4	15	n.	T. C. Spence.
Hazlehurst	Copiah	460	19	41.6	.....	78	4	16	30	45	4.53	.....	1.98	0.0	8	17	3	11	n.	J. D. Granberry.
Jackson	Hinds	280	22	43.4	− 4.1	80	3	15	30	43	3.45	− 1.08	1.24	0.0	13	15	8	8	se.	Frank J. Heintz.
Lake	Scott	446	21	39.0[b]	− 7.6	78[b]	3	9[a]	30	43[b]	3.51	− 0.87	1.48	0.0	8	13	4	12	nw.	J. A. Freeman.
Lake Como	Jasper	.....	6	44.3	.....	77	4	15	30	40	7.21	.....	1.85	0.0	10	11	13	7	n.	C. Thigpen.
Laurel	Jones	241	5	45.8	.....	77	4	16	30	39	6.16	.....	1.84	0.0	13	16	5	10	ne.	Thos. W. Flynt.
Leakesville	Greene	.....	15	47.2[a]	− 3.4	83[a]	1	16[a]	30	42[a]	7.47	+ 2.05	1.85	0.0	.....	19	2	9	.....	Dr. Samuel Pool.
Louisville	Winston	561	20	41.8	− 5.8	78	4	13	30	36	4.35	− 0.35	1.20	1.0	10	.....	.....	.....	.....	B. T. Webster.
McNeill	Pearl River	185	21	48.7	.....	75	4	20	30	84	7.90	.....	3.05	0.0	11	14	10	7	nw.	Finis E. Carleton.
Macon	Noxubee	230	6	39.4[b]	− 6.9	74[b]	2	12[b]	31	38[b]	3.45	.....	1.28	T.	9	15	4	11	nw.	Prof. E. B. Ferris.
Magnolia	Pike	415	13	47.4	− 3.1	77	4†	18	30	36	4.22	− 1.40	1.41	0.0	9	10	9	12	nw.	Miss Ruby V. Roberts.
Meridian	Lauderdale	375	19	42.0	− 4.9	73	4	16	30	36	4.34	− 0.87	1.04	0.0	13	11	8	12	n.	U. S. Weather Bureau.
Merrill	Greene	76	4	.....	.....	.....	.....	.....	.....	.....	7.00	.....	1.60	0.0	12	14	5	12	n.	L. C. Helms.
Monticello	Lawrence	209	2	44.5	.....	79	4	14	30	43	4.90	.....	1.03	0.0	14	13	10	8	nw.	Dr. G. A. Teunisson.
Okolona	Chickasaw	311	21	36.5	− 7.3	74	4	13	30	35	4.93	+ 0.62	1.54	3.0	7	16	3	12	n.	D. H. Shell.
Pascagoula	Jackson	15	.....	49.6[c]	.....	76[c]	4	25[c]	21	32[c]	.....	.....	.....	0.0	.....	.....	.....	.....	n.	Tom Swartwout.
Pearlington	Hancock	10	21	48.2	− 4.5	74	1†	20	30	38	8.98	+ 4.53	3.33	0.0	10	11	8	12	ne.	Miss Annette Koch.
Porterville	Kemper	.....	4	42.2[d]	.....	75[c]	4	11[c]	30	32[b]	3.17	.....	0.95	0.0	5	12	10	9	n.	W. G. Sanders.
Shubuta	Clarke	301	4	.....	.....	.....	.....	.....	.....	.....	6.48	.....	1.26	0.0	10	14	5	12	n.	Geo. A. Floyd.
Waynesboro	Wayne	191	22	43.0	− 5.8	77	4	15	30	42	7.40	+ 2.87	1.40	0.0	9	17	0	14	n.	R. S. Burke.
Woodland	Chickasaw	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.20	.....	1.10	2.5	11	.....	.....	.....	.....	Tallahatchie Drain. Com.
Louisiana.																				
Pearl River	St. Tammany	.....	4	.....	.....	.....	.....	.....	.....	.....	8.64	.....	3.00	0.0	13	18	2	11	n.	Geo. F. Bancks.

TABLE 2.—*Daily precipitation for December, 1909. District No. 2, South Atlantic and east Gulf States.*

Stations.	River basins.	Day of month.																												Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Virginia.																																	
Arvonia	James							.22					T.	2.48			.01									.80				.02			3.53
Ashland	...do							.54						2.12												.26							2.92
Buchanan‖	...do							.05	.16					.82			.03									.61							1.87
Callaville	Chowan							T.					T.	1.11			.01									.59	T.			.05			1.76
Cape Henry	Coast							.51						2.51			T.									.50							3.52
Charlottesville	James								.20					.60	2.20					T.						.05	.30						3.30
Clarkesville‖	Roanoke							.15						2.30		T.										.50							2.95
Columbia	James							.06	.13					.89	.77		.06			.02					.19	.08							2.20
Danville‖	Roanoke													2.00												.67							2.67
Diamond Springs	Coast																																
Dinwiddie	Chowan												.09	1.00											.31	.08			T.				1.48
Hampton	Coast							.52	.20					.98	.38											.25	.15						2.48
Hot Springs‖	James													.25											.25								0.50
Ivor	Chowan							.63						1.73												.42			T.				2.78
Lexington	James							.46					.18	1.65												.49				.01			2.79
Lynchburg	...do																1.12																1.12
Newcastle‖	...do							T.					T.	1.32			.36									.39	.03			.25			2.12
Newport News	Coast							T.					T.	1.46			.01									.42	T.			.02			1.91
Norfolk	...do							T.	.10					1.85			.02									.59				T.			2.56
Petersburg	James								.36					1.12	1.26											.01							2.75
Randolph‖	Roanoke							.17					.03	2.49			.05									.37				.08			3.39
Richmond	James							.89						1.88												.53							3.30
Rockymount	Roanoke																																
Sabot	James							.12						2.02												.50							2.64
Saxe	Roanoke							.06					T.	2.00			.01									.43				.02			2.52
Spottsville (near)	Chowan							T.	.10					.98	.75		.05									.65			*	.15			2.68
Williamsburg	James																																
North Carolina.																																	
Beaufort	Bogue Sound			.01	.03			.50						1.03	1.00		.12			.47	.14					.53				T.			3.83
Belhaven	Pungo							.11						.86												.50				T.			1.47
Brewers	Pedee			.01				1.35	.01				.12	1.65												.33							3.47
Caroleen	Santee			T.				1.48					T.	2.06					.22							.59							4.26
Chalybeate Springs	Cape Fear								T.					1.64						T.	.10					.42				.02			2.18
Chapel Hill	...do			T.				.02					T.	1.99						T.	.11					.56							2.68
Charlotte	Santee			T.		T.		.21					.20	1.39						.17	.02	T.			.04	.48							2.51
Chimney Rock	...do							1.84					.12	2.67						T.						.41							5.04
Clinton	Cape Fear			T.									.08	.75						T.						.51				T.			1.64
Eagletown	Chowan							T.	.02					2.56							.05					.45				T.			3.08
Edenton	Albemarle Sound							T.						.91												.90				T.			1.81
Fayetteville‖	Cape Fear		.01	.03										.23	.77					19	T.					.03	.12				T.		1.38
Goldsboro‖	Neuse			T.											.95						.15	T.				.80							1.90
Graham‖	Cape Fear							T.	.09					.98	1.39						.07					.31	.17						3.01
Greensboro‖	...do							.10	.30					.85	1.00						.05					.05							2.35
Greenville‖	Tar														.96						.10					.25	.45				T.		1.72
Hatteras	Pamlico Sound							.03					.03	1.52					.03	.10	.01					.40				T.			2.15
Henderson	Tar							.42						1.01					10							.12							1.65
Kinston	Neuse							1.49					.13	1.47					T.							.50							3.59
Lenoir	Santee							.30						1.47												.52							2.39
Lexington	Pedee		.10					1.30					.10													.02							1.42
Lincolnton	Santee							T.						T.	1.08					.02						.12	.35			T.			1.57
Louisburg‖	Tar													.23	.70					.36	.22	.02				.31	.19			T.			2.38
Lumberton‖	Lumber			.25	.10									.46												.58							1.04
Manteo	Roanoke Sound							T.																									4.38
Marion	Santee		T.	.01				1.58					.20	2.13					T.	T.	T.					.46							1.75
Moncure‖	Cape Fear								.03					.56	.61					.07						.33	.15						2.94
Monroe	Pedee							T.						2.00					.12	.14	.06					.62							4.27
Morgantown	Santee							1.77					.12	2.00					T.							.38							3.53
Mount Airy	Pedee							1.17					.10	1.72						.20						.34							3.34
Mount Holly‖	Santee			T.				.36	.20					1.34	.44					.60	T.					.30	.10						2.26
Nashville‖	Tar							T.						.10	1.54					T.						.33	.29			T.			2.03
Newbern‖	Neuse													.19	1.08					.10	.05					.61					T.		2.00
Pinehurst	Lumber													1.47												.45	.08						2.51
Pittsboro	Cape Fear													1.81												.70							1.89
Raleigh	Neuse			T.				T.						1.30					.09	T.						.50				T.			2.95
Ramseur	Cape Fear													2.00												.95							2.35
Randleman‖	...do								.15					.74	.90					.06						.08	.42						2.55
Reidsville‖	...do							.08	.15					.97	.94		.04			.03						.28	.06						
Rockingham	Pedee																																
Roxboro	Roanoke							.32						1.24												.50							2.06
Salem	Pedee							.22	.10					1.04						.58						.10	.44						2.48
Salisbury‖	...do							.46					.02	1.50					T.							.44							2.42
Saxon‖	Roanoke																																
Scotland Neck	Tar							.20						2.00						T.						.15							2.50
Selma	Neuse			.15				1.10						1.50						T.						.36							2.96
Settle	Pedee							T.						1.80					.05	.40	.14					.37				T.			2.84
Sloan	Cape Fear			.08										1.41						.13						.40				T.			1.94
Snow Hill	Neuse								T.				T.	1.40						.20	T.					.48				T.			2.08
Southern Pines	Cape Fear			.01				.07					.02	1.62			.30			.52	.16					.37				T.			3.07
Southport	...do								.93				T.	1.03						.10	T.					.46							2.52
Statesville	Pedee								.01					.01	1.92					.04						.25	.25				T.		2.48
Tarboro‖	Tar							T.						2.05					.16	.03						.43							2.67
Troy	Pedee								T.					.05	1.52	T.				.02						.16	.34						2.09
Weldon‖	Roanoke												T.	1.18						.45	.15					.90				T.			2.68
Whiteville	Waccamaw													2.23						.54	.15					.50							3.65
Willard	Cape Fear			.23																													2.50
Wilmington	...do			.14				.01					.05	1.58		.03	.02		.07	.25	.05					.30				T.			
Yanceyville	Roanoke																																2.20
South Carolina.																																	
Aiken	Edisto			.05		.05								.75					.10	.50	.20					.55							3.04
Allendale‖	Savannah													.85	.54		.25			.45	.35					.60							3.33
Anderson	...do		.06					.76					.06	1.30					.20	.21	.04				.05	.65							3.10
Batesburg‖	Edisto			.40					T.					.76	.31					.26	.27	.06				.43	.61						2.87
Beaufort	Coast													.69				.01	1.22	.45					.35		.15						
Bennettsville	Pedee											.95	.40		.10			.24	.40	.07			.45	.03	.03	.05							2.74
Blackville‖	Edisto		.01				.01						1.10	.60						.24	.24					.66							2.84
Blairs‖	Broad							.11					T.	.22	.63				T.	.65	.42					.38							2.41
Bowman	Edisto		T.											.18						.27	.47	.17			.72	.29							2.94
Calhoun Falls‖	Savannah			.23				.39	.22					1.40						.33	.15					.63							2.57
Camden (1)	Wateree			T.				.06						.32	.84					.18	.16	.08				.56	.08						2.28
Camden (2)‖	...do			.06					.12					1.10	.52					.34	.14					.58	.20						3.00
Catawba‖	Catawba													.10						.06	.10	.38				.24							0.88
Chappells‖	Saluda												.03	.27	.01				.34	.69	T.				.01	.31			.09				1.75
Charleston	Coast		T.	T.					T.					.64	.32					.38	.16	T.				.46	.10						2.26
Cheraw (1)‖	Pedee			.18	.02																												

TABLE 2.—*Daily precipitation for December, 1909. District No. 2*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
South Carolina-Cont'd.																																	
Cheraw (2)‖	Pedee																																
Clarks Hill	Savannah								2.06					1.67					.15	.20						.78							4.90
Clemson College	...do		.04																	.07	.29	.09				.10	.40					T.	2.06
Columbia	Congaree		.03	.03					T.				.11	.94							.23	.27	.08				.25	.35			T.		2.82
Conway‖	Waccamaw			.16										1.08	.30		.10				.26	.25	.03				.40	.12					1.84
Darlington	Pedee			.01										.52	.25																		1.66
Dillon	Little Pedee						T.							.65					.04	.37	.10					.50							4.50
Effingham‖	Lynches													.90	.95					.95	.90						.80						2.60
Ferguson‖	Santee			T.					T.					.80			.20				.70					.90							2.78
Florence‖	Pedee													.50	.76					.30						.92	.30						1.86
Georgetown	Coast												T.	T.	.45		.22		T.	.40	.45						.34						4.60
Greenville‖	Saluda			T.				.72	.80					1.80	.21					.40	.05					.60	.02						3.35
Greenwood‖	...do			.08										1.76					.15	.37	.06					.93							3.11
Health Springs	Wateree		.30											1.76						.34	.18					.53							2.03
Jacksonboro	Combahee			T.			T.										.08			1.17	.13					.54			.11				2.20
Kingstree (1)‖	Black			.05										T.	.85		.05			T.	.70	.10				T.	.45						
Kingstree (2)‖	...do																																5.07
Liberty	Savannah		.04	.08				2.10					.30	1.95		T.			.30	.10						.20							2.39
Little Mountain	Saluda		.20					.10					.04	.90					.07	.32	.13					.63							2.53
Newberry	...do		.01					.15					.78	.40					.19	.26	.04				.65	.05							3.44
Pelzer‖	...do						.56	.40					1.08	.20						.30	.10	.02				.68	.10						1.22
Pinopolis	Cooper		.04													.28				.40	.10				.10	.30							2.20
St. George‖	Edisto			.30										.10	.20					.80	.40						.40						2.83
St. Matthews‖	Santee												.45	.89					.30	.65	.10				.41	.03							3.01
Saluda	Saluda			1.11				.12											T.	.90	.20				T.	.68							2.79
Santuc	Broad		.07					.15					T.	1.41					.24	.19	.10					.63							4.13
Smith Mills‖	Pedee			.33										.83	1.18					.63	.23	.28				.28	.37						2.18
Society Hill	...do		.12										.78	.28					.32	.10					.58								3.23
Spartanburg‖	Broad							.43	.36					1.35	.24					.20	.05	.02				.58							2.71
Summerville	Ashley		T.	T.									T.	.71			.19		.01	.92	.16					.59			.13				2.66
Trenton	Edisto	T.	.29					.12						.96					.19	.30	.19				.61								2.24
Trial	Santee			.04				T.						.73		.22			*	*	.75					.50							4.86
Walhalla	Savannah		.15				1.00	1.03					1.80	.70					.08	.10					T.								2.82
Walterboro	Ashepoo		T.	T.				T.					T.	.72			.20		T.	1.15	.08					.59			.08				
Winnsboro	Broad																																2.60
Winthrop College	Catawba			T.				.16					T.	1.62					.14	.12	.04					.52							2.67
Yemassee‖	Combahee			T.	.02									.13	.39		.17			.86	.52	.06				.25	.16		.11				
Georgia.																																	
Abbeville‖	Ocmulgee					*	.66	.20					*	.90	.14	.61	.68								*	.30	T.		.06				3.61
Adairsville	Coosa		T.	.05		*	.02	2.52					.10	.97		.10				.18							*	.95					4.89
Albany‖	Flint	*	.06	.05				.38	.16				*	.97		*	.04		*	.43	.50	.04			*	.90	.02	*	.12				3.67
Allapaha‖	Allapaha						*	.24					*	.64					*	1.02					*	.23		*	.28				2.41
Americus‖	Flint																																
Athens‖	Oconee		*	.07			*	.42	.19				*	1.23	.08				*	.26	.23					*	.92						3.42
Atlanta	Chattahoochee		.20			T.	.60	.52	T.				.85	.05		T.			.05	.16						.90	.18						3.51
Augusta	Savannah		.02				.01	.07					.02	.70		T.			.07	.45	.11					.18	.35						1.98
Bainbridge‖	Flint		.30	.02			.35	.94	.54				*	1.31				*	.11	.78	.66	.02				*	.45		*	.58			6.06
Barnesville	...do						.16	.41					.05	.95		.04			.15	.46	.19					.07	.54						3.02
Blakely	Chattahoochee		.17			.13	.09	1.18						.38			.06		.04	.80	.10						.53			.23			3.71
Brunswick	Altamaha																																
Butler‖	Flint						*	.44	.24				*	1.02					*	.49	.20						.46							2.85
Camak‖	Savannah							T.	.20				*	.80						.55						*	.80						2.35
Canton	Coosa																																
Carlton‖	Savannah		*	.31				.25	.36				*	.87	.13					*	.24	.20				*	.82						3.48
Carrollton‖	Chattahoochee																																
Clayton	Savannah		.11	.04				2.46					.83	3.10					T.	.15						.85				T.			7.54
Columbus‖	Chattahoochee						*	.60	.30				*	.88	.08				*	.30	.28					*	1.23						3.64
Covington‖	Ocmulgee						2.10	.37					.95						.45	.31						.56							4.74
Cuthbert	Chattahoochee																																5.25
Dahlonega	...do		.07	.05		T.	T.	2.40					.49	1.28		.02			.15	.06						.73	T.						
Diamond	Tennessee		.01	.10		.04	*	5.45					.98	.76					.21	.04							1.16			*	.04		6.79
Douglas	Satilla																																
Dublin‖	Oconee			T.			*	.10	.12				*	1.00	.16		*	.20	*	.86	.32	.10				*	.52	.06						3.44
Dudley	...do		T.	T.			.24	.62					T.	.87		T.	.06		T.	.84	.10					T.	.28		T.					2.41
Eastman‖	Ocmulgee						*	.17	T.				*	1.32					*	.27	.62	.06				*	.93		T.					3.37
Eatonton	Oconee						.07	.45						.50					.10	.43	.20					*	.62							2.37
Elberton	Savannah		.03					.50					.10	1.05					.05	.25	.03			T.	.90									2.91
Experiment	Chattahoochee						.26	.16					.50	.40					.12	.37	.20					.14	.50							2.65
Fitzgerald	Allapaha																																
Forsyth	Ocmulgee					.30	.47						1.00							*	1.00	.04							.39				3.20
Fort Gaines‖	Chattahoochee		.05	T.			.05	1.50	.20				T.	1.10			T.			*	.70	.10	.10				*	.75			.08			4.63
Gainesville‖	...do						*	1.60	.62				*	1.02	.10					*	.26	.16					*	1.01						4.77
Gillsville	Oconee		T.	.10		T.		2.00					.35	.88					.20	.25	T.					.35	.92						5.05
Glennville‖	Altamaha			T.			T.	.02					*	1.09		.11			.66	.54	.03					.28			.17				2.90
Gore	Coosa		.16			.03		3.12					.67	.91		.02			.18	T.						.31	.75			T.			6.15
Greensboro‖	Oconee		*	.06			*	.21	.28				*	.43					*	.33	.42					*	1.10						2.83
Griffin‖	Chattahoochee			T.			T.	.55	.29				*	.77					*	.32	.25	.15				*	.70						3.03
Harrison	Ogeechee							.05					*	1.02		.05				.93	.20					.08	.52						2.85
Hartwell	Savannah		.21					.84					.11	1.14					1.37	.31						.10							4.08
Hawkinsville‖	Ocmulgee						*	.38	.06				*	.88	T.	*	.08		*	.90	.20	T.							.02				2.52
Helena	...do						.30	.06					T.	.68					.05	.99	.09	T.				T.	.33			.04	T.		2.54
LaFayette	Tennessee		.16					2.75					1.20	.99		.05			.14	T.						.63				T.		5.92
Lisbon	Savannah			.32				.50						1.26					.09	.37	.26					.80						3.60
Lost Mountain	Chattahoochee		T.			T.	T.	3.00				.63	.25						.10	.28						T.	.80			T.			5.06
Louisville	Ogeechee						.10						.80							.96						.80							2.66
Lumber City	Ocmulgee						*	.01	.02				*	.34	.20				*	.68	.54	.02				*	.30			.20				2.31
Lumpkin ‖	Chattahoochee						.47	.61					.81			.07			1.08	.34	T.					.54							3.92
Macon	Ocmulgee		T.	T.			.09	.20					.41	.04		T.			.23	.45	.05					.25	.42			T.			2.14
Marshallville	Flint			T.			.30	.40					*	.53		T.			*	.75	.16					*	.46						2.60
Mauzy	Suwanee		.05					.61						1.33			.09		.03	.69	.14						.40			.54			3.88
Milledgeville‖	Oconee		*	.04	.02		T.	.14	.10					.62					*	.56	.65					*	.65						2.78
Millen‖	Ogeechee									*	.50				.40				T.	1.10	.10				*	.90							3.00
Montezuma‖	Flint						*	.60	.10					.24					*	.56	.66	.10				*	.28						2.54
Monticello‖	Ocmulgee						*	.21	.23				*	1.09					*	.41	.40					*	.72						3.06
Morgan	Flint	.11					.10	.25	.13				.20							.25	.40	.08				.41			.14				2.07
Newnan‖	Chattahoochee						*	.75					.06	1.52					.05							*	1.00						3.38
Oakdale‖	...do						*	1.43					*	1.27						*	.35					*	1.30						4.35
Point Peter	Savannah		*	.29				.60					*	.90					*	.53						*	.90						3.22
Poulan	Suwanee		.08				.12	.51					.75	.47					.06	.83	.11						.37			.22			3.52
Putnam	Flint					.50	.40						1.20												*	*	1.23						3.33
Quitman‖	Suwanee		*	.08				*	.58				*	1.30					*	T.	.20	T.					.52			.77			3.45
Ramsey	Coosa		.26			T.		1.70					.33	.48					.11							.25	.63				T.		3.76
Resaca‖	...do		*	.15			*	2.40					*	1.20					*	.20	T.					*	1.00						4.95
Rome‖	...do		T.	.04		*	.04	2.10	T.				.10	1.44	*	.10			*	.30					*	1.04	T.		*	T.			5.16

TABLE 2.—*Daily precipitation for December, 1909. District No. 2*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Georgia—Cont'd.																																	
St. George	St. Marys		.84	.03				T.						.73					.35	.21	.04					.26		.41					2.87
St. Marys	...do		T.	T.			T.	T.					.01	.37		.02			.07	.94	.01				T.	.20			.20				1.82
Savannah	Savannah		T.	.02				T.					T.	1.10	T.	T.			.65	.61	.03				T.	.32			.16				2.89
Statesboro	Ogeechee						.42	.60					.13	.66					.20	.42	.20			T.	T.	.80							3.43
Talbotton	Chattahoochee												*	1.75						T.					*	1.50							3.25
Tallapoosa‖	Coosa		.09	T.			T.	1.10					1.18	.05		.02			.19	.50	.09					.35		.57	.05				4.19
Thomasville	Ochlockonee		*	.16			*	2.00	*	.45			*	2.01					*	.58						.89							6.09
Toccoa‖	Savannah		*	T.				T.	.40				*	.92					*	T.	.70	.20			*	.32		*	.45				2.99
Valdosta‖	Suwanee													.60							1.40					.15		.18					2.33
Valona	Ogeechee		T.																														3.73
Washington‖	Savannah		*	.32			*	.22	.38				*	1.05					*	.42	.38					.88	.08						2.39
Waycross‖	Satilla		*	.02				*	.10				*	.91	.12				*	.16	.48	.15			*	.10	.08	*	.27				2.35
Waynesboro‖	Savannah								T.					*	.02	1.28				*	.07	.48	.20			*	.27	.03					4.26
West Point‖	Chattahoochee		*	.12		*	T.	.34	.12				.06	1.94	*	.06			*	.28	.44				*	.90							2.98
Woodbury‖	Flint						*	.61					*	.81		.05	.03		*	.35	.45				.07	.61							
Florida.																																	
Apalachicola	Coast		1.66					1.95					T.				.13		2.00							.70							6.44
Arcadia	Peace Creek												.08	.06					.17	.07	.34	.23	.22			.03			.65				1.85
Archer‖	Waccasassa		.85					.48	.10					1.80					.10	.57	T.					.25			.27				4.42
Avon Park	Kissimmee		T.	.22				T.	.03				.03	.08					.03	.08	.33	.25				.13			.40				1.58
Bartow	Peace Creek			.20				.03					.03	.93					.10	.39	.17	.11					.08		.37				2.41
Blountstown	Apalachicola		.76					1.98					1.03					.20	.40	.22				1.09			.73						6.41
Bonifay	Choctawhatchee	.73					.58	2.45					1.05							.66				.42			.58						6.47
Brooksville	Withlacoochee							.32						.65					.17		.40					.22			.54				2.30
Carrabelle	Coast																																
Cedar Keys	...do		2.00									.02		.87					.05	.20	.09												3.23
Clermont	Lake												.10						.30	.10						.20		.14					0.84
De Funiak Springs	Choctawhatchee		1.05			.80	.43	1.57					1.78	.27		T.			.24	.32	.14					.76			.55				7.91
De Land	St. Johns		.09	T.					T.	T.			.01	.20					.02	.01	.34	T.				.06			.42				1.15
Eustis‖	Lake		.33						.03	T.			*	.22					.11	.52						.11			.20				1.52
Federal Point	St. Johns		.11	.12		.02		.01	T.					.33					.08	.29	.03	.02				.16			.18				1.35
Fenholloway	Fenholloway	.61						.75						.79						.52		.08											2.75
Fernandina	Coast		.08	.19	.04	.02								1.20						.30	.05				.04	.42	.02	T.	.52		.02		2.90
Flamingo	...do																																
Fort Meade	Peace Creek		T.	.04					.12				T.	.60					.07	.18	.77	.07				.05			.30				2.20
Fort Myers	Caloosahatchee		.02	.28			T.						.09	.04					.40		.04	T.				T.			.30				1.10
Fort Pierce	Indian	.08							.06				1.05	.07						T.	.49	.31	.14										2.20
Gainesville‖	Lake		.24					T.						.06					.07	.03	.49	T.	.02			.14			.13				1.18
Grasmere	...do			.03																.02	.01					.03			.05				0.14
Hilliard	Nassau		.23	.04				.15			.05								.54		.02					.15							1.18
Huntington	St. Johns		.16	.02										.57	.04							.43											1.22
Hypoluxo	Lake		.38					.17					.32	.54						.60						.40		.42					2.83
Iverness‖	Withlacoochee		.06					.02				T.	T.	1.20					.17	.22	.03					.10		.08	.42				2.39
Jacksonville	St. Johns																																
Jasper	Suwanee		.26		.01			.12						.73	.03				.02	.48	.05								.81				2.51
Johnstown	...do								.05				24	.26					.04	.01	.07	.26				T.			T.				0.99
Jupiter	Coast				.06								T.	.06	.04				T.		1.03	.09	T.			T.			.14	.04			1.61
Key West	...do	.08		.12			.01							.62					T.	T.	.38					.20			.19				1.43
Kissimmee	Kissimmee		T.	.02										1.20					T.	.55	.11	.10				.13			.40				3.65
Lake City‖	Suwanee		.38	.17				.61						.92						.33						.38			.30				3.24
Live Oak	...do			.81					.50					1.20					.05	.55	.04	.10							.50				3.02
Macclenney	St. Marys		.20	.15				.23						.96		.12			.05	.25	.26	.07				.38			.29				3.60
Madison‖	Suwanee		.05	.24		T.	T.	.02	.91					.15					.42	.04	.38	.20	.03	T.		T.							1.38
Malabar	Indian			.05					.11					.29					.18	T.	.60							.35	.75				2.44
Manatee	Manatee		T.	.05					.22				T.																				
Marianna‖	Apalachicola													.20					T.	T.	.66	.04				.01			.05				1.03
Merritts Island	Indian		T.										T.		T.					T.		T.	1.20										1.20
Miami	Coast	T.	T.	T.										1.35							.50											2.05
Middleburg	St. Johns		.20																									.80					9.81
Molino	Escambia	1.18				.80	*	1.26				*	4.83					.22		.72													4.00
Monticello	Aucilla		.23					1.12						1.34						.25	.10					.41			.55				
Mount Pleasant	Apalachicola																		T.	1.20	T.				1.07							6.19
Newport	St. Marks		1.40					1.10		T.				1.42						.64	.04					.08		.22					1.29
New Smyrna	Coast		.08											.23					T.	.20	.23	T.				.20			.69				1.97
Ocala‖	St. Johns			.42					T.	T.				.23						.20	.55												1.28
Orange City	...do		.23											.30						T.	.10	.10	T.			.11		T.					0.67
Orlando	...do		.11										T.	.25					T.	.10													8.55
Pensacola	Coast	.55	.54			.44	1.97	1.04				.11	2.65	.01		.01		.10	.20	.24	.07				.07	.17		.38					1.62
Plant City	Hillsboro												.15	.25					.18	.06	.20					.08			.70				0.42
Rockledge	Indian													.16							.26												
Rockwell	Withlacoochee																		.20	.20	.31					.55			.63				7.07
St. Andrew	Coast		1.46			.01	.03	1.52					1.85	.31					.05	.25	.05	T.				.20			.38				1.26
St. Augustine	...do		T.	.08										.25																			
Sand Key	...do												*	.67					.15	.13	.13					.18			.47				2.66
St. Leo	Withlacoochee		.07	.02				.77	.07					.35					.04	.34	T.					.06			.22				1.38
Satsuma Heights	St. Johns		.24					.13						.68						.16	.45	.15				.10							1.65
Switzerland	...do							.11						1.30						.10	.05					.40				1.00			4.65
Tallahassee‖	Ochlockonee			.20				.20	1.40					.14	.11				.21	.03	.07	T.				.12				.36			1.06
Tampa	Coast		.01	.01				T.	T.	T.			.14	.50					.47		.13					.42			.57				2.26
Tarpon Springs	...do		.15	.02				T.					.50							.03	.24	T.			.07			.05				0.65
Titusville‖	Indian		.03		T.				.02				T.	.21																			
Wausau	Choctawhatchee																																
Alabama.																																	
Alaga‖	Chattahoochee		.54	.02			.34	1.26	.22				T.	.32		T.				.16	.56	.10				.72			.38				4.62
Anniston	Coosa		.27			.08	1.86	.40					1.49	.19	.02	.05			.08	.22					.84	.06							5.56
Ashville	...do		T.			.25	.26	1.39					1.42	.35		.11			.39	T.						.70	.38						5.25
Auburn	Tallapoosa		.38			T.		.68						2.22		.04			.11	.45	.25				T.	.90							5.03
Benton‖	Alabama		1.17			T.	.41	.22					.87	1.30	T.	.18			.62	.84	.12					1.16							6.89
Bermuda	Escambia		1.65			.69	.03	.86							3.79					.99	.33				.90								9.24
Birmingham	Black Warrior	.16	.10	.01		.31	1.01	.46				.16	.71	.13	.03				.33	.19	.01				.77	.03						T.	4.41
Boligee	Tombigbee													.32	1.15					.28	T.					.75							4.16
Calera‖	Coosa		.12				.54	1.00					1.25	.85		.05			.02	.06	.02				T.	.08							2.42
Camp Hill	Tallapoosa	.01				T.		.08						.95						.15					1.20								3.95
Cedar Bluff‖	Coosa						1.65																										8.97
Citronelle	Alabama	T.	.84	T.		2.07	.08	.38	T.				2.08	.10		.25			.85	1.30	.20	.04				.78							4.97
Clanton‖	Coosa		.41	.07			.40	.75					20	1.36		T.			.06		.80				.28	.64							4.29
Cordova	Black Warrior	.15	T.			.32	.98						1.35	T.	.06				.20	T.					1.23								4.93
Cullman	...do	.04	.15				.43	.73	1.55				T.	.71	T.				.13	.01					1.10	.08			T.				5.13
Dadeville‖	Tallapoosa		.10	.05				1.09					T.	2.05		.10			T.	.39	.40				T.	.95							6.61
Daphne	Coast		1.13			.05	.08	.90				.05	2.80			.28			.50	.15	.27							T.	.40				5.96
Demopolis‖	Tombigbee		1.22	.10			.72	.52					.48	.82		.10				.36	.14					1.50							
Double Springs‖	Black Warrior																																4.08
Eufaula‖	Chattahoochee					.01		.01	1.05	.55			.12	.72		.08				.64	.22	.08				.60								6.42
Evergreen‖	Escambia		.62					2.00					1.15	1.65	.30				.40	.30													

TABLE 2.—*Daily precipitation for December, 1909. District No. 2*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Alabama—Cont'd.																																	
Fayette	Tombigbee	.10			.40	.10	.05	.70				T.	2.00						.08	.05					.05				.75				4.28
Flomaton	Escambia																																
Fort Deposit‖	...do			.08			.10	1.56					.12	1.44						.16	.02				T.	1.56							5.04
Gadsden‖	Coosa							1.92						1.50												1.82							5.24
Goodwater‖	...do																																4.83
Greensboro‖	Black Warrior		.88	.03			.61	.61					.59	.56		.04			T.	.27		.52			1.71								5.21
Greenville‖	Escambia		.53		.32	.47		.62					.42	1.74			.21			.47						.43							3.60
Hamilton	Tombigbee	.27	T.			.33	.13	.58						.32		.06			T.	.21	.26				1.08	.36							5.71
Highland Home	Escambia		.32	.01		.60	.15	.74				1.69	.35			.10			.70	.37	.25					.43							4.45
Livingston‖	Tombigbee		.34					1.63					.42			.47									1.59							4.71
Lock No 4‖	Coosa		.27			.14	.04	1.36				1.04	.37			.05			.10	.28					.24	.82							5.10
Lucy	Chattahoochee		.56			.46	.14	1.64				T.	.56		T.	.09			.08	.49	.21	.02							.85				5.30
Maple Grove	Coosa	T.	T.			T.	1.80	T.				.11	1.60	T.	.10				.25	T.				T.	1.44	T.	T.					T.	5.30
Mentone‖	...do						2.40						1.68						.18	.15							T.						4.41
Milstead‖	Tallapoosa		.72	.22	.10		.18	.72					.75	1.55		.10				.50	.28				.02	.36							5.50
Mobile	Coast	.67	.46			1.19	.12	.19				.86	2.70			.11		.10	.21	.13	.14				.60			.02					7.50
Montgomery	Alabama	.30	.68			.29	.16	.64					1.69	.15		.05			.20	.59	.18				.78	.07		T.					5.78
Newbern	Black Warrior	.72	.25	.01		.70	.45					T.	1.16			.10		T.	.50	.40					.75								5.04
Oneonta	...do		.11			.20	.14	1.36					.67	.39	.08				.20	.10					.48	.61	.01						4.35
Opelika‖	Tallapoosa		.11	.10			T.	.57					44	2.05			T.			.45	.48					.85							5.05
Ozark†‖	Coast																																
Prattville	Alabama		.60			.47	.25						2.30		.35	.07			.21	.42	.15				.40	.40							5.62
Pushmataha	Tombigbee		1.15				1.08	.72					.75	.25		.06			T.	.45	.65					.91							6.02
Selma‖	Alabama		.88	T.			.88	.38					30	1.32		.04			T.	.34	.44					.76							5.34
Spring Hill	Coast	.14	1.64			1.59	.10	.27				.05	4.03	.18		1.50			.30	.18	.19				.72			T.	.05				10.49
Talladega	Coosa		.15	.07		.19	.04	1.62	.02				.91	.38		.05			.23	.08	.31	.10		.10		.07							4.32
Tallassee‖	Tallapoosa		.20	.13			.06	1.13	T.				11	2.18		.02	.01			.26	.54				T.	.79							5.43
Thomasville‖	Tombigbee		1.10				.84	.18					.80	.74						.65						.15							4.46
Troy	Escambia		.33			.22	.24	.96					1.52	.20		.10			.66	.25					.45								4.93
Tuscaloosa‖	Black Warrior		.50				.62	1.59					.46	.92		.08			.02	2.00	.13				.23	1.15							7.70
Tuskegee	Tallapoosa		.51			.03	.29	.97					2.45			.07				.83					.74								5.89
Union Springs‖	...do			.20			.22	.80	.10				50	1.35			T.			.60	.50					1.30							5.57
Uniontown	Black Warrior		.57			.88	.02	.23				T.	.98	.34	.03				.10		.57				T.	.85		T.					4.55
Valley Head	Coosa		.20		T.	.14		1.58					.60	.56					.15	.03					.48	.35					T.		4.11
Vienna‖	Tombigbee																																
Wetumpka‖	Coosa	.50					.20	1.29					T.	1.45						.38	.50				T.	.77							5.09
Mississippi.																																	
Aberdeen‖	Tombigbee		T.			.32	.15	1.20					1.05	.34		.05				.45	.05				T.	1.28							4.89
Agricultural College	...do	T.				.43	.42	.40				T.	1.24	.27						.30					1.55	.11							4.72
Bay St. Louis	Coast	.10	2.18			.99		.26				*	1.84	.07	.01	.24			.32	.68	.25					.34		.04					7.32
Biloxi	...do	.07	.36			.35	T.	.27				.02	3.06	.07	.15				.25	.11	.25					.34		.04					5.32
Booneville	Tombigbee	.07				.55	.71	.74				.35	.68	.23					.40	.20					1.04	.17							5.14
Brookhaven‖	Pearl		.48			.04	.05	.40					1.04	.11		.23				.74	.55				T.	.99							4.63
Columbia‖	...do		1.28			.28	T.	.14					1.78	.24		.18				.40	.40					.94							5.64
Columbus‖	Tombigbee		.06			.04	.24	.92					1.24	.28	T.				.01	1.75	.50				.12	.94							6.10
Crystal Springs‖	Pearl	.25				.12		.08					1.10	.13		.08				.80						.82							3.38
Edinburg	...do	.10	T.			.35	.22	.34					1.20	.18		.05			.02	.69	.06				.10	1.35							4.66
Enterprise‖	Chickasawhay		.70			.08	.08	.74					1.10	.30		.14			.04	.44	.60					1.08							5.90
Fulton	Tombigbee						.22	1.42					.80	.40		.06			.04	.30	.04				T.	1.50							4.78
Hattiesburg‖	Leaf		1.02			.70	.44						2.60	.20		.06			T.	.52	.48					.38							6.40
Hazlehurst‖	Pearl		.86				.06	.07				T.	1.14	.12		.24			.06	T.	T.					1.98							4.53
Jackson	...do	.02	T.			.08	.04	.12				.05	1.24	.10	.02	.10			.23	.56				T.	.84	.05							3.45
Lake‖	...do		.05	.03			.18						1.48	.15	.13				.02							1.47							3.51
Lake Como	Leaf	.40	.18			1.85	.12	.32					1.80			.32			.50	.52					1.20								7.21
Laurel	...do	.42	.18			.25	.14	.13					1.84	.12		.05			1.12	.45	.26					.28	.92		T.				6.16
Leakesville‖	Chickasawhay		1.46			.25	1.01	.20					1.85	.23		.12				*	1.40						.95							7.47
Louisville	Pearl	.06				.34	.50	.32					1.20	.25					.27	.25					.68	.48							4.35
McNeill	...do	1.10	.18			.80		.18					3.05	.13		.52			.26	.33	.38					.97		T.					7.90
Macon‖	Tombigbee		T.			.15	.22	.38					.75	.25	T.	T.			.05	.30	.07					1.28							3.45
Magnolia	Pearl	.66				.20		.10				1.41	.14		.16	T.			.17	.66					.72								4.22
Meridian	Chickasawhay	.15	.22			.45	.17	.60				.05	1.00	.04	.11	.02			.13	.56					.84								4.34
Merrill‖	Pascagoula		.86			.10	.80	.80					1.60	.40		.10	.20		.04	.80	.20					1.10							7.00
Monticello	Pearl	.40	.02			.16	T.	.36				.03	1.00	.10	.02				.79	.61	.13	.01			1.03	.24							4.90
Okolona‖	Tombigbee		.05				.20	1.54					1.13	.21						50.	T.					1.30							4.93
Pascagoula	Mississippi Sound																																
Pearlington	Pearl	.29	3.33			.55		.20					2.71			.49			.41	.38	.29					.33		T.					8.98
Porterville	Tombigbee					.33	.31						.95						T.	.68					.90								3.17
Shubuta‖	Chickasawhay		1.26			.56	.62	.44					1.26	.32		.04				.48	.24					1.26							6.48
Waynesboro‖	...do		.98				1.40	.42					1.18	.27		.10			T.	1.00	.80					1.25			T.				7.40
Woodland	Tombigbee	.09				.18	1.10	.47					1.00	.24			.27	.23	.32						1.07	.23							5.20
Louisiana.																																	
Pearl River	Pearl		1.82			.62	.22	.32					3.00	.36		.18	.30		.28	.28	.60	.04				.62		T.					8.64

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
‖ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‡ Estimated by observer.
¶ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 2, South Atlantic and east Gulf States.*

	Virginia.								North Carolina.																		Charleston, S. C.	
	Lynchburg.		Norfolk.		Richmond.		Saxe.		Charlotte.		Eagletown.		Fayetteville.		Hatteras.		Newbern.§§		Raleigh.		Reidsville.		Salisbury.		Wilmington.			
Date.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	53	23	48	36	51	31	53	16	57	31	52	23	57	26	51	42	55	27	54	32	47	28	51	26	55	31	57	40
2	55	24	46	37	52	34	53	17	52	38	53	22	62	24	54	42	59	24	59	32	68	28	51	29	59	35	59	44
3	51	30	48	37	48	30	53	25	60	46	50	27	57	42	52	41	54	38	55	39	55	36	56	41	52	43	65	53
4	66	36	62	39	64	37	68	25	69	43	63	28	69	32	55	43	67	32	67	42	70	35	64	34	65	40	64	49
5	66	34	63	45	63	39	69	30	68	41	63	31	74	32	60	44	65	34	69	42	71	41	65	34	73	45	68	49
6	62	33	58	44	63	41	65	38	64	45	65	42	72	44	62	47	71	42	67	50	67	45	66	36	71	53	68	60
7	48	32	64	41	60	37	61	26	62	42	67	33	72	48	63	45	73	40	68	45	60	36	61	41	72	55	68	59
8	43	32	50	37	46	32	56	26	42	33	60	32	68	32	62	45	54	36	47	33	52	28	55	30	64	41	60	41
9	34	22	38	30	36	25	39	25	41	26	42	32	49	33	48	37	51	34	41	27	41	25	41	30	53	33	55	39
10	36	19	36	24	39	19	40	13	44	22	38	16	44	17	40	32	42	21	39	21	44	18	40	20	44	25	48	32
11	37	24	40	29	36	24	41	16	51	32	43	18	52	29	47	35	54	29	47	21	52	25	48	25	52	30	57	38
12	38	30	48	37	43	33	41	26	47	37	52	24	52	32	62	39	62	27	46	31	44	29	43	33	55	37	65	54
13	45	32	64	46	62	37	51	34	60	36	64	43	64	48	69	59	65	44	64	41	43	32	55	35	68	49	68	48
14	50	35	53	40	53	36	51	31	51	32	62	36	58	32	60	44	58	34	54	33	52	30	54	31	56	36	58	36
15	52	32	56	38	53	37	.....	.....	58	36	56	34	68	33	60	46	63	33	58	36	60	31	58	32	66	39	66	44
16	40	25	43	33	41	30	.....	.....	44	30	44	32	50	33	54	41	53	36	45	33	45	27	49	26	55	35	57	37
17	48	20	50	29	49	24	58	15	50	28	49	22	54	29	50	37	55	22	52	30	52	24	45	31	57	32	58	36
18	39	29	43	37	40	30	46	16	44	33	48	30	51	32	51	38	53	28	48	32	43	31	45	30	58	38	61	42
19	32	23	37	30	30	23	35	16	37	34	37	31	40	33	38	36	38	30	36	32	38	27	40	32	39	34	45	40
20	36	19	32	28	30	22	34	14	35	32	35	27	39	32	38	34	37	30	37	32	35	29	38	32	35	32	40	36
21	40	17	39	28	36	19	42	10	40	28	38	17	43	21	43	32	45	20	42	25	46	29	41	29	45	27	48	33
22	33	23	39	28	37	24	39	20	41	27	42	22	45	23	44	33	46	22	40	25	40	25	40	22	45	31	51	32
23	40	25	42	24	44	24	44	18	42	21	45	24	46	22	43	30	46	20	43	22	41	19	44	19	45	25	46	30
24	46	28	40	28	44	23	49	19	47	28	43	20	54	23	45	33	57	22	48	26	53	21	49	23	49	28	50	32
25	38	32	47	33	37	30	39	30	41	29	46	30	52	33	60	36	57	31	45	34	39	32	43	25	58	36	58	38
26	37	26	42	32	40	30	41	30	40	28	45	32	40	31	45	35	46	30	41	29	38	29	39	27	43	33	47	34
27	41	24	44	28	40	28	44	24	45	24	43	28	51	24	48	33	51	24	44	27	46	24	46	22	51	28	53	30
28	34	27	40	32	38	26	42	19	43	31	43	26	50	27	48	36	50	31	44	29	42	24	44	26	51	36	53	38
29	27	14	32	19	28	16	42	21	32	14	31	24	58	23	43	26	40	23	30	16	32	20	36	20	40	20	42	25
30	21	12	24	13	24	10	43	10	26	12	27	15	28	14	28	20	34	12	23	12	26	10	29	9	28	16	33	18
31	40	16	37	17	35	15	45	20	41	18	39	13	42	14	41	24	46	14	40	16	46	14	38	22	45	19	50	25
Mns	42.8	25.7	45.3	32.2	43.9	27.9	47.9[b]	21.7[b]	47.5	30.9	48.0	26.9	53.6	29.0	50.5	37.6	53.1	28.4	48.2	30.5	48.0	27.5	47.5	28.1	53.2	34.3	55.4	39.0

	South Carolina.														Georgia.													
	Columbia.		Conway.§§		Georgetown.		Greenville.§§		Newberry.		Society Hill.		Trial.		Adairsville.§§		Albany.§§		Atlanta.		Augusta.		Dahlonega.		Macon.		Savannah.	
Date.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min
1	58	35	68	25	57	33	66	30	57	28	54	27	60	23	59	32	77	40	59	39	61	32	54	35	63	30	58	42
2	57	32	62	25	59	32	55	29	57	29	54	43	58	27	59	34	76	54	54	46	58	35	56	37	63	46	66	49
3	65	46	65	45	65	49	71	36	64	40	53	32	78	42	66	34	78	54	65	46	66	48	63	44	61	46	66	54
4	70	39	68	35	67	42	68	36	68	38	62	37	70	38	66	39	78	52	71	49	69	43	70	38	67	44	68	46
5	72	39	74	37	71	45	67	37	72	38	67	37	75	38	66	37	80	53	62	50	71	41	64	42	70	43	72	51
6	71	51	74	47	71	54	68	38	68	45	67	55	75	51	64	37	80	50	62	42	71	50	60	39	65	55	72	38
7	70	44	74	50	73	57	67	36	64	55	70	36	70	57	64	38	74	49	62	32	70	43	58	41	65	39	69	54
8	47	34	55	38	65	41	49	31	48	31	52	37	63	34	39	29	59	34	39	28	48	34	43	27	46	34	56	38
9	48	30	56	39	56	42	58	29	47	32	48	23	58	35	39	21	54	33	32	22	46	29	37	21	43	29	53	37
10	47	23	47	23	50	27	58	21	46	26	44	24	49	23	42	20	60	26	49	19	47	25	46	20	48	25	50	28
11	56	27	56	22	54	30	55	23	53	24	51	38	60	21	51	22	65	33	49	36	56	27	59	26	56	30	59	38
12	59	42	66	34	63	42	44	29	62	40	63	50	62	44	52	30	70	40	50	43	64	46	45	41	67	49	69	50
13	67	38	68	50	68	59	58	36	67	46	64	34	67	50	46	44	61	56	56	32	66	37	50	34	62	35	68	46
14	58	33	57	35	65	37	58	29	55	31	51	36	57	31	51	26	64	32	53	28	56	33	46	26	54	31	57	38
15	61	43	57	34	66	43	67	29	61	39	60	32	57	35	51	30	68	36	55	35	58	38	52	36	56	39	69	44
16	49	32	53	24	62	38	56	24	48	28	42	23	55	33	42	26	51	32	42	26	50	31	46	26	47	30	53	36
17	54	28	58	24	56	31	55	23	53	25	49	24	57	23	52	23	58	28	52	32	56	27	50	25	56	27	57	37
18	54	37	58	29	60	39	43	25	45	33	50	36	57	32	35	27	57	29	45	28	54	35	45	32	48	34	61	43
19	40	36	58	39	48	39	38	32	40	34	38	32	43	35	.....	25	45	42	31	27	44	41	37	32	41	37	45	42
20	38	34	39	34	46	35	40	34	37	36	38	26	40	35	35	.....	43	40	33	25	43	39	42	32	40	30	44	40
21	46	33	48	25	46	29	51	25	45	29	43	24	47	26	42	21	51	28	43	21	46	34	41	21	44	24	50	34
22	46	28	47	24	48	29	53	23	45	25	44	24	48	23	39	20	52	28	39	22	48	28	37	25	47	28	52	31
23	44	23	43	24	43	26	53	22	45	21	42	25	45	23	37	18	48	26	40	18	45	24	44	21	45	22	48	28
24	50	28	50	24	53	28	43	24	47	24	48	37	50	23	39	27	58	30	39	27	46	27	43	26	43	26	49	31
25	49	34	58	32	58	42	47	31	45	36	50	30	55	38	40	30	52	39	38	30	48	35	38	26	47	35	58	40
26	45	31	43	32	58	42	57	27	46	29	44	27	44	31	34	27	46	31	34	25	44	32	33	26	41	30	46	34
27	50	25	54	27	41	28	53	21	49	24	48	33	52	26	45	18	49	24	47	25	53	27	35	22	53	24	55	28
28	47	32	54	34	52	40	48	24	45	29	47	30	51	33	40	26	51	35	39	26	46	28	35	23	43	33	51	39
29	35	18	40	30	40	29	35	19	34	28	30	14	39	25	22	19	40	32	35	12	34	21	33	14	38	18	43	23
30	28	13	35	17	30	18	38	9	28	10	28	18	33	23	29	10	36	14	27	10	31	13	27	7	32	14	34	17
31	49	19	49	15	47	21	50	13	47	18	41	29	40	15	.....	11	55	19	45	21	51	20	44	16	52	22	51	24
Mns	52.6	32.5	55.9	31.1	56.4	37.0	53.8	27.2	51.2	31.1	49.7	31.3	55.3	35.3	46.4[b]	26.7[b]	59.2	36.1	46.7	29.7	53.1	33.0	45.9	38.6	51.7	32.5	56.5	38.6

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 2*—Continued.

Date.	Georgia.						Alabama.														Florida.					
	Thomasville.		Waycross.‡‡		West Point.‡‡		Anniston.		Bermuda.		Birmingham.		Eufaula.‡‡		Mobile.		Montgomery.		Tuscaloosa.‡‡		Uniontown.		Avon Park.		Fort Myers.		Gainesville.‡‡	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	71	44	74	39	63	32	63	44	68	45	63	47	65	38	71	57	66	44	66	46	67	43	81	53	76	55	.....	.....
2	66	52	68	40	63	33	61	50	73	53	64	55	70	40	73	61	68	53	68	48	71	54	78	53	76	54	.....	.....
3	72	50	64	54	65	51	65	44	75	43	64	53	70	52	71	52	59	51	66	46	68	47	86	60	78	64	.....	.....
4	73	47	74	49	68	43	73	42	74	43	71	49	70	43	73	50	70	50	76	42	70	47	83	57	74	59	.....	.....
5	77	51	78	45	62	42	62	47	65	49	69	44	68	42	72	58	63	52	62	43	65	50	86	56	79	59	.....	.....
6	68	62	76	48	66	43	66	40	67	50	65	39	66	48	69	54	68	50	68	42	61	44	86	53	78	56	.....	.....
7	67	44	63	60	63	50	67	34	66	44	66	33	63	56	70	40	68	36	48	42	67	38	84	57	76	56	.....	.....
8	55	35	58	36	42	32	38	29	47	30	38	29	48	30	47	34	42	33	39	30	39	31	79	63	75	62	.....	.....
9	54	34	57	36	41	28	37	21	47	28	37	21	45	28	50	33	44	28	39	23	43	25	70	54	67	60	.....	.....
10	54	28	57	27	48	23	49	19	58	25	50	22	49	24	60	35	51	28	54	23	52	22	67	37	66	44	.....	.....
11	64	32	64	27	53	27	53	32	67	28	54	44	58	25	62	30	56	38	54	24	51	35	76	45	73	50	.....	.....
12	73	55	75	39	60	32	59	48	60	36	59	50	64	34	63	52	59	52	60	34	58	50	75	56	78	53	.....	.....
13	62	40	68	54	51	49	60	28	68	36	58	31	56	52	52	36	60	33	38	34	59	35	79	64	75	65	.....	.....
14	59	34	59	32	56	28	57	26	48	37	59	39	56	28	66	41	62	30	59	28	65	29	67	46	68	53	.....	.....
15	72	43	71	33	57	33	53	31	55	41	50	32	58	30	61	43	57	36	49	29	58	44	73	56	68	44	.....	.....
16	52	30	55	37	45	27	45	24	51	27	46	25	46	28	51	34	48	30	47	23	49	26	70	44	71	46	56	.....
17	59	28	60	25	56	26	54	26	59	25	54	35	52	25	60	34	58	29	64	25	59	25	76	44	72	48	60	36
18	52	38	56	26	43	27	37	29	49	38	42	26	49	26	51	39	47	36	36	24	48	35	72	55	76	56	59	42
19	47	43	48	41	35	33	30	27	40	33	27	22	40	35	39	36	37	32	36	24	35	30	82	64	77	63	54	47
20	45	37	47	42	37	32	35	20	35	30	33	22	44	33	39	31	37	28	35	24	35	27	76	55	77	63	51	49
21	52	30	56	41	45	29	41	17	45	22	41	20	46	21	48	28	46	22	40	19	42	20	61	55	70	58	58	44
22	51	30	53	31	44	24	41	20	49	28	42	24	47	24	49	31	48	31	43	19	48	24	63	52	67	55	57	35
23	49	27	52	28	43	29	42	19	51	25	42	19	44	23	53	31	47	24	43	21	46	21	62	40	62	43	54	32
24	59	28	55	26	42	22	40	28	58	32	39	33	52	25	64	41	47	34	43	22	49	34	73	44	70	43	63	34
25	61	40	61	28	43	34	42	32	51	40	40	30	48	34	63	42	47	36	43	34	48	39	71	54	71	50	69	43
26	48	28	49	32	40	39	39	23	46	30	38	26	41	27	50	33	43	30	43	24	45	27	61	43	60	49	52	36
27	62	25	60	26	55	22	50	25	56	21	50	28	52	22	59	37	55	28	54	24	53	27	69	31	66	39	65	26
28	53	34	54	29	44	26	44	26	51	31	46	25	45	32	53	37	47	32	46	27	53	26	73	54	70	58	60	46
29	46	24	46	33	33	29	39	14	44	30	27	16	36	30	44	28	41	20	31	26	44	27	64	44	65	43	54	33
30	37	17	37	16	33	11	31	9	39	14	33	12	33	13	43	22	35	18	35	14	37	14	53	28	57	32	40	19
31	56	22	54	17	47	15	47	26	59	20	45	27	50	15	53	34	51	26	53	14	57	22	57	25	48	31	50	29
Mns	58.6	36.4	59.6	35.4	49.8	30.7	49.0	29.0	55.3	33.4	48.5	31.3	52.6	31.7	57.4	39.8	52.5	34.5	49.6	29.0	53.0	32.8	72.7	49.1	70.5	52.5	.....	.....

Date.	Florida.																Mississippi.							
	Jacksonville.		Jupiter.		Key West.		Miami.		Orlando.		Pensacola.		Tallahassee.‡‡		Tampa.		Columbus.‡‡		Hattiesburg.‡‡		Jackson.		Meridian.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	69	48	76	67	74	64	79	64	76	45	68	58	70	45	75	53	65	39	79	45	66	54	62	50
2	66	50	74	58	78	64	80	63	77	47	74	60	67	46	71	58	75	50	80	54	74	54	71	48
3	65	53	81	67	76	68	84	59	80	61	69	55	69	53	78	58	70	38	75	39	80	37	72	41
4	69	50	80	64	78	65	82	62	77	55	69	56	71	46	75	51	70	38	79	40	80	40	73	45
5	75	55	78	64	80	68	79	66	81	51	72	63	72	48	80	59	62	40	80	42	66	49	67	45
6	75	60	79	62	78	69	79	58	80	51	70	60	70	54	78	60	61	35	79	48	59	41	68	41
7	73	60	80	65	80	67	82	65	80	53	69	39	67	63	74	62	43	38	80	44	63	38	68	32
8	62	43	80	63	78	67	82	61	75	60	53	34	65	36	71	56	40	28	56	35	40	31	39	30
9	58	40	67	51	75	65	75	62	68	50	53	32	53	34	63	46	39	20	49	27	43	21	41	23
10	53	31	70	46	73	63	75	50	65	35	55	36	54	29	64	37	45	20	53	24	60	22	54	24
11	67	43	72	64	76	63	74	61	73	39	67	51	65	30	72	44	53	20	64	40	65	49	56	38
12	73	62	74	68	78	68	77	62	77	56	68	62	71	41	76	57	.....	45	63	44	60	39	61	38
13	69	48	79	65	80	69	78	64	76	53	62	41	60	56	71	57	.....	35	60	29	49	27	44	32
14	61	39	68	53	73	66	81	70	65	43	63	45	60	33	63	47	.....	27	57	32	69	30	66	31
15	70	43	75	49	72	66	74	59	70	33	67	44	70	35	70	43	.....	31	60	32	59	35	55	34
16	58	41	70	53	74	67	78	59	67	43	50	34	52	35	65	47	.....	22	62	26	55	24	49	26
17	62	37	75	54	76	65	76	55	68	34	54	39	56	34	68	41	.....	24	52	27	58	25	55	27
18	60	43	76	62	81	67	79	63	70	49	53	44	55	36	68	53	.....	27	54	32	49	25	45	28
19	51	47	82	68	79	71	85	65	80	64	44	39	48	42	74	64	.....	24	60	32	29	25	29	25
20	51	45	82	66	80	69	83	65	76	58	40	31	46	44	67	56	.....	21	42	28	34	23	33	22
21	54	42	75	64	74	69	83	66	60	52	53	28	51	31	59	53	.....	17	38	20	41	18	39	19
22	55	36	67	52	70	64	79	64	60	45	51	33	50	32	59	49	.....	17	47	26	46	24	46	25
23	48	32	66	44	68	60	72	48	63	37	56	32	49	30	60	39	.....	20	42	27	44	24	43	24
24	58	33	71	48	72	60	71	48	70	39	65	42	55	32	68	41	.....	21	52	40	52	37	54	36
25	71	42	75	54	75	66	80	52	73	44	64	42	54	35	67	51	.....	34	62	42	50	35	49	35
26	50	35	61	43	67	60	68	54	60	41	50	33	43	38	54	41	.....	24	52	28	51	27	45	28
27	62	33	67	39	68	58	70	38	70	27	61	42	50	28	65	36	.....	25	50	32	62	27	58	28
28	58	42	72	50	74	64	80	50	70	50	52	38	63	32	63	49	.....	23	65	31	56	25	51	28
29	52	26	66	42	69	62	70	47	63	32	44	28	44	35	58	35	.....	23	56	33	38	27	42	21
30	39	19	51	30	63	48	64	33	62	25	41	21	36	18	44	27	.....	12	60	18	47	15	39	16
31	50	27	59	32	58	48	63	36	58	21	58	35	53	20	54	26	.....	13	50	30	61	32	58	30
Means	60.8	42.1	72.5	55.1	74.1	64.2	76.8	57.1	70.6	44.9	58.5	41.8	57.7	37.8	66.9	48.3	.....	27.5	59.6	33.8	55.0	31.7	52.6	31.3

Climatological Data for December, 1909.

DISTRICT No. 3, OHIO VALLEY.

FERDINAND J. WALZ, District Editor.

GENERAL CLIMATIC CONDITIONS.

The conditions that characterized the month of December, 1909, were diametrically opposite to those of the month of November preceding. The average temperature in November was the highest in nearly all parts of the district for any November in the past two decades or more, while the temperature during December averaged the lowest for any December for a corresponding period. In nearly all parts of the district the reports were that December was the coldest, with few exceptions, since the records began. There were no extremely low temperatures registered, but the low average was due to the long duration of the cold weather. Precipitation over the district, as a whole, was about normal. The only deficiency worth mentioning occurred in the northeastern section and over parts of Tennessee and the Virginias, while the only excess of importance occurred along the southern border of the district. Although in southwestern Virginia there was a deficiency as compared with the normal for the month, yet there was sufficient moisture to effectually break the drought which had prevailed in that section during the past several months. In much of the district, but especially in the mountain sections and over the northern portions, snowfall was somewhat heavier than is usual in December. In fact, in West Virginia the snowfall was reported the heaviest recorded in any one month. Over a considerable portion of West Virginia there were from 12 to 27 inches, while at Pickens, Randolph County, 35 inches were measured. Over the States north of the Ohio River the snowfall ranged from 8 to 15 inches, and considerable snow fell as far south as northern Georgia.

TEMPERATURE.

The month began with temperature decidedly above normal, the warm weather of November continuing over into December during the first 5 or 6 days. During this time the maximum temperatures registered 60° and over on several days in nearly all parts of the district, and 70° and over in West Virginia, Ohio, Tennessee, and Kentucky. Following a general storm which developed in Texas and extended over the lakes and central valleys during the 4th and 5th, and which was accompanied by moderately heavy rains, there was a decided fall in temperature, and from the 6th to the 11th unusually cold weather prevailed, the temperature ranging from 6° to 24° below normal. About the 12th another general storm moved into the Mississippi Valley, terminating the cold weather temporarily. This storm brought moderately heavy to heavy rains over all the district and the temperature up to or slightly above normal.

After the passage of this marked disturbance, high pressure areas largely prevailed during the rest of the month, and under their influence the temperature was persistently low. The average daily temperature ranged between 10° and 28° below normal, while maximum temperatures for the day were largely below freezing, even to the southern limits of the district. The lowest temperatures were recorded on the 29th or 30th, when minimum temperatures of between zero and 13° below were reported in States north of the Ohio River and in Kentucky and a small section of Tennessee, and about zero in the rest of the district.

The greatest deficiency in temperature during the month occurred in Indiana, Illinois, and the southwestern part of Tennessee, where the daily average ranged from 8° to slightly more than 9° below normal. The least deficiency was in the northeastern part of the district, the mean temperature in western Pennsylvania and southwestern New York being only from 2° to 5° below normal. Over the rest of the district the deficiency ranged between 5° and 8°.

PRECIPITATION.

Precipitation was about normal and was well distributed through the month. In one or two States, notably Indiana and Ohio, precipitation occurred practically every day. The main periods of rainfall were from the 2d to the 7th, the 11th to the 14th, and 18th to the 19th. Heavy precipitation, mostly snow, occurred in the periods from the 24th to the 29th. The heaviest precipitation for the month occurred along the southern border of the district, where it was between 5 and 8.5 inches. Amounts between 4 and 5 inches occurred in the section bordering the lower Ohio River and over the Cheat River section of West Virginia. Over the rest of the district the amounts ranged between 2 and 4 inches, except that it was less than 2 inches in small areas in the southwestern portion of Pennsylvania, the Panhandle of West Virginia, and over most of the watershed of the Big Sandy.

Excessive precipitation occurred at the following places, all in the upper Tennessee watershed: Rock House, 3.63 inches, Diamond, 3.45, and LaFayette, 2.75 on the 7th; Hendersonville, 2.80 inches on the 12th and 13th; and Brevard, 3.20 inches on the 13th.

CONDITIONS OF RIVERS.

The stage of water in the rivers was low during the first part of the month. General precipitation caused moderate rises later in the month. The smaller rivers were frozen by the 15th and remained frozen for the rest of the month. Most of the larger tributaries at the headwaters of the Ohio were frozen over by the 20th and one or two as early as the 10th, notably the Allegheny. The Ohio River was about two-thirds full of heavy floating ice by the 20th, extensive ice gorges blocking the stream in many places, and at the close of the month enormous packs menaced all river craft and bridges. There was a general suspension of navigation during the last week or 10 days of the month.

MISCELLANEOUS.

Heavy sleet storms badly crippled transportation lines and wire connections in Indiana and Ohio during the night of the 10th and 11th, and in western Pennsylvania during the 12th and 13th. Sleet storms also caused considerable trouble in Tennessee and Georgia during the 24th and 25th.

General storms passing over the Ohio Valley were unusually numerous during the month, and several of them were quite severe. Most of them moved well to the southward before entering the Mississippi Valley. Those in the early part of the month were attended by rains and occasional thunderstorms, while those in the latter part were accompanied by more or less heavy snow. The disturbance causing the most damage was that of the 5th—the storm which terminated the warm period and ushered in the cold. The area of extensive or serious damage, however, was mostly confined to the Wabash section of Indiana and came through severe local and secondary disturbances induced in the southeast quadrant of the general storm. Several of these had seemingly tornadic characteristics. The severest of them, as far as could be learned, occurred at Terre Haute, of which the Section Director for Indiana reports as follows:

> On Sunday, December 5, 1909, at about 11:50 a. m., a severe wind and rain storm struck the city of Terre Haute, Ind. It passed from southwest to northeast through the center of the business district, destroying portions of several brick buildings, unroofing a number of others, breaking many windows, and leveling shade trees and telephone poles that stood within its path. No lives were lost, but several narrow escapes occurred. The damage to property is variously estimated at $15,000 to $25,000. A number of eyewitnesses observed a pendant funnel-shaped cloud, and describe it

as moving along with a violent whirling motion, its lowest extremity being some distance above the ground, at times approaching near to the surface and then rising several hundred feet into the air. A close examination of objects affected by the wind shows that, while the storm did not have all the features of a well-developed tornado, it was closely allied with that type of storm, and that the missing characteristics were probably due to the fact that the full force did not reach down to the surface of the ground, and probably did not possess the energy, as a whole, that is usual in the well-developed types.

Prof. J. T. Scovell, of Terre Haute, an eye witness, in an extended account of the storm states, among other things, that it seemed to arise on the river near the foot of Park street and pursued a somewhat irregular course toward the northeast, fading out near Twenty-fifth street and the Vandalia Railway. It made great waves in the river and tore several boats from their moorings. It appeared as a black funnel-shaped cloud whose parts were in violent motion. A large 4-story building which was in the path of the storm was partially unroofed, although the fourth story portion was not disturbed. Window casings on the north side of the building were pushed out at the bottom, while shocks of corn stalks in the field immediately north of the building were not disturbed. Many evidences of the variation in direction of the force of the wind were found which indicated a gyratory movement.

TABLE 1.—*Climatological data for December, 1909. District No. 3, Ohio Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
New York.																				
Allegany	Cattaraugus	1,441	3	29.5	.....	58	4	−11	30	37	2.09	.....	0.50	15.6	17	1	6	24	w.	Charles E. Whitney.
Bolivar	Allegany	1,800	13	23.6	− 1.8	57	5	− 8	30	35	1.48	− 1.33	0.40	8.8	14	4	4	23	sw.	Lowell Andrus.
Franklinville	Cattaraugus	1,598	12	22.7	− 2.0	59	1	−12	30	41	1.86	− 1.36	0.20	16.2	19	5	2	24	w.	John W. Kales.
Jamestown	Chautauqua	1,365	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Olean	Cattaraugus	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.64	.....	0.44	11.3	13	2	2	27	w.	John W. Alles.
Maryland.																				S. P. Specht.
Deer Park	Garrett	2,457	15	22.3	− 5.5	66	5	− 5	30	41	3.89	+ 0.17	1.00	30.0	9	.....	.....	.....	.....	J. S. Miller.
Grantsville	....do	2,351	15	23.0	− 6.0	60	5	− 2	30	30	5.62	+ 1.80	2.30	27.0	10	5	4	22	.....	R. E. Weber.
Oakland	....do	2,461	9	23.4	.....	69	5	− 4	30	44	2.78	.....	0.60	17.8	19	4	9	18	w.	
Pennsylvania.																				
Aleppo	Greene	1,135	8	27.4	.....	69	5	− 2	30	37	1.92	.....	0.40	13.0	12	9	4	18	sw.	J. S. Hinerman.
Baldwin	Butler	1,404	3	23.4	.....	58	6	0	30	31	3.27	.....	0.94	16.2	12	4	2	25	w.	S. H. Templeton.
California	Washington	770	6	29.0	.....	62	2	5	30	37	.....	.....	.....	.....	.....	.....	.....	.....	.....	Prof. E. H. Knabenshue
Claysville	....do	1,127	5	26.9	.....	71	5	− 2	30	39	2.23	.....	0.58	10.8	10	11	5	15	w.	E. T. Buchanan.
Derry Station	Westmoreland	1,172	12	27.0	− 7.4	68	5	− 3	30	40	2.24	− 1.15	0.92	11.0	13	9	2	20	w.	D. M. Wineman.
Franklin	Venango	955	35	24.6	− 4.5	58	5†	− 2	20	36	2.42	− 0.92	1.16	8.5	6	3	8	21	w.	Venango Water Co.
Freeport	Armstrong	772	31	.....	.....	.....	.....	.....	.....	.....	2.99	− 0.46	0.92	10.5	18	.....	.....	.....	.....	Mrs. A. R. Burtner.
Greensburg	Westmoreland	1,100	1	26.0	.....	67	5	− 2	30	37	2.05	.....	0.44	14.2	13	8	2	21	sw.	M. W. Crownover.
Greenville	Mercer	950	13	24.6	− 6.4	61	5	1	20	39	2.48	− 0.31	0.67	18.2	14	7	4	20	w.	A. M. Orr.
Grove City	....do	1,250	2	23.8	.....	60	5	− 3	30	36	2.36	.....	0.80	12.1	15	8	4	19	sw.	H. W. Harmon.
Indiana	Indiana	1,350	12	25.4[a]	.....	67[a]	5	− 2[a]	30	33[a]	3.14	.....	1.08	18.0	11	6[a]	7[a]	17[a]	sw.	Rev. J. M. Welch.
Irwin	Westmoreland	884	12	27.7	− 5.3	69	2	− 2	30	47	1.79	− 1.41	0.55	4.8	9	9	2	20	.....	J. B. Gallagher.
Johnstown	Cambria	1,184	21	26.4	− 6.3	60	5	0	30	34	3.70	− 0.01	1.02	15.7	18	4	15	12	nw.	E. C. Lorents.
Lycippus	Westmoreland	1,420	17	26.2	− 6.1	69	5	− 4	30	37	3.05	− 0.51	0.93	27.1	17	.....	.....	.....	.....	Murray Forbes.
Pittsburg	Allegheny	842	39	26.8	− 7.9	65	5	− 1	30	25	2.30	− 0.43	0.98	8.6	14	4	8	19	w.	U. S. Weather Bureau.
Saegerstown	Crawford	1,116	18	27.6	− 1.2	60	5	1	21	42	2.36	− 1.05	0.42	15.5	18	3	3	25	sw.	J. G. Apple.
St. Marys	Elk	1,740	11	21.5	− 4.6	52	1	− 3	29†	31	2.97	+ 0.08	1.40	13.5	10	6	9	16	.....	Wm. E. Wittman.
Skidmore	Lawrence	1,000	5	24.0	.....	60	1†	− 3	30	38	2.14	.....	0.80	8.0	7	8	1	22	sw.	W. H. Stoner.
Somerset	Somerset	2,250	53	22.5	− 6.2	65	5	− 5	30	36	3.69	− 0.39	0.80	28.2	15	5	9	17	nw.	W. M. Schrock.
Uniontown	Fayette	999	21	27.6	− 7.4	70	5	2	30	38	2.43	− 1.33	0.50	16.5	14	11	1	19	sw.	Wm. Hunt.
Warren	Warren	1,137	20	24.4	− 3.4	56	5	2	30	32	2.54	− 0.84	0.40	17.8	12	7	1	23	nw.	Anna Simpson.
West Virginia.																				
Aborvale	Pocahontas	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. E. Arbogast.
Bancroft	Putnam	.....	5	29.9	.....	75	5	2	30†	41	1.90	.....	.....	6.5	11	9	1	21	nw.	James Hill.
Beckley	Raleigh	2,440	10	29.8	− 3.6	75	1†	− 2	30	50	2.25	− 0.71	1.20	16.5	6	16	0	15	w.	John A. Ewart.
Ben's Run	Pleasants	622	6	28.8	.....	71	5	4	30	37	3.16	.....	0.97	12.0	10	21	2	8	.....	J. D. Riggs.
Bluefield	Mercer	2,563	12	31.1	− 3.7	63	6	0	30	31	.....	.....	.....	.....	.....	19	3	9	.....	Agent, N. & W. Ry. Co.
Buckhannon	Upshur	1,472	13	28.8	− 4.3	70	5	− 3	31	38	2.46	− 1.69	0.60	10.1	10	11	7	13	.....	H. A. Darnall.
Cairo	Ritchie	667	7	30.0	.....	72	5	3	20	46	2.65	.....	0.62	9.0	9	7	11	13	nw.	Van A. Zevely.
Central Station	Doddridge	900	9	26.4	− 6.7	70	5	− 1	31	43	2.17	− 1.21	0.71	10.5	10	5	11	15	w.	G. W. Sherwood.
Charleston	Kanawha	598	6	33.4	.....	71	5	5	30	40	1.69	− 1.49	0.46	4.2	7	8	6	17	w.	R. C. Hewes.
Creston	Wirt	612	7	29.8	.....	68	5	5	30	34	2.06	.....	0.62	8.3	11	5	7	19	w.	J. M. Reed.
Cuba	Jackson	544	7	29.7	.....	74	5	1	30	49	1.94	− 1.24	0.60	4.5	9	8	12	11	nw.	C. T. Perry.
Doane	Wayne	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	G. W. Jude.
Elkhorn	McDowel	1,933	14	32.2	− 5.3	70	5	0	30	35	2.82	−0.34	0.80	6.7	11	9	9	13	nw.	J. J. Lincoln.
Elkins	Randolph	1,940	10	26.6	− 5.9	71	3	− 2	30	41	2.02	− 1.40	0.64	13.2	16	3	8	20	w.	U. S. Weather Bureau.
Fairmont	Marion	879	4	28.4	.....	71	5	3	31	41	.....	.....	0.62	8.5	14	.....	.....	.....	.....	H. Glenn Fleming.
Glenville	Gilmer	738	14	30.5	− 4.3	75	5	1	31	44	2.96	− 0.74	0.65	10.0	11	10	2	19	nw.	John Holt.
Grafton	Taylor	985	16	28.5	− 5.4	74	5	0	31	44	2.52	− 0.92	0.83	6.7	12	9	11	11	.....	S. W. Wilson.
Green Sulphur Springs	Summers	1,600	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. Gwinn.
Hinton	....do	1,400	13	.....	.....	.....	.....	.....	.....	.....	2.72	− 0.02	1.50	5.5	12	.....	.....	.....	.....	R. R. Flanagan.
Huntington	Cabell	510	12	29.2	− 5.2	73	5	0	30	44	1.16	− 2.11	0.36	6.0	7	8	10	13	w.	L. H. Hutchinson.
Lewisburg	Greenbrier	2,200	8	29.0	− 3.7	67	5	− 3	31	39	2.35	− 0.56	1.11	4.5	5	9	7	15	w.	Geo. T. Argabrite.
Logan	Logan	665	7	35.0	.....	78	5	4	30	40	2.85	.....	0.85	11.0	7	7	22	2	w.	H. C. Ragland.
Lost Creek	Harrison	1,033	11	28.8	− 4.5	75	5	− 2	31	46	2.36	− 1.27	0.80	6.8	11	9	4	18	w.	Allen Smith.
Madison	Boone	704	4	28.3[a]	.....	73[a]	5	4[a]	29	41[a]	2.78	.....	0.60	11.0[a]	12[a]	6[a]	10[a]	14[a]	.....	S. E. Bradley.
Mannington	Marion	967	6	27.0	.....	67	5	− 5	30	38	2.93	.....	0.86	10.2	16	8	4	19	w.	Jas. A. Morgan.
Morgantown	Monongalia	1,250	13	28.8	− 5.6	69	5	1	30	38	2.00	− 1.22	0.48	6.0	9	9	13	9	w.	Horace Atwood.
Marlinton	Pocahontas	2,169	10	24.9[c]	− 5.5	54[c]	5	− 4[c]	31	33[c]	3.34	+ 0.34	2.00[c]	5.8[c]	4[c]	12[c]	5[c]	11[c]	.....	N. C. McNeil.
Moundsville	Marshall	640	6	29.2	.....	73	5	− 2	30	41	1.85	.....	0.57	5.0	9	17	1	13	sw.	J. E. Matthews.
New Cumberland	Hancock	987	9	26.0	− 5.3	70	5	− 3	30	39	2.24	− 0.10	0.85	7.0	9	3	7	21	w.	Frank S. Evans.
New Martinsville	Wetzel	634	14	30.4	− 4.4	73	5	0	30	39	2.40	− 1.05	1.09	9.0	10	19	1	11	sw.	Wm. Ankron.
Nuttallburg	Fayette	2,252	12	24.5	.....	63	5	− 1	30	30	2.27	− 0.65	0.84	15.5	6	6	8	17	.....	Stephen Tully.
Parkersburg	Wood	638	21	29.6	− 5.7	71	5	1	30	33	1.99	− 0.78	0.72	6.6	12	4	11	16	sw.	U. S. Weather Bureau.
Parsons	Tucker	1,662	7	25.8	− 5.6	71	5	−10	30	34	4.19	+ 0.32	1.40	27.5	10	5	8	18	.....	J. W. Swisher.
Philippi	Barbour	1,192	10	28.4	− 4.6	72	5	− 3	31	45	2.71	− 1.21	0.75	9.8	14	3	10	18	nw.	J. D. Dadisman.
Pickens	Randolph	2,785	16	25.4[a]	− 7.3	72[a]	5	− 6[a]	30	36[a]	4.00	− 0.97	1.20[a]	35.0[a]	14[a]	7[a]	6[a]	18	w.	Dr. J. L. Cunningham.
Pineville	Wyoming	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. M. Senter.
Point Pleasant	Mason	553	14	29.8	− 5.6	65	6	2	30	37	1.80	− 1.20	0.54	4.0	8	2	5	24	sw.	E. H. Armstrong.
Powellton	Fayette	904	13	33.2[d]	− 2.6	71[d]	5	5[d]	31	40[d]	2.65	− 0.24	1.40[d]	17.0[d]	7[d]	3[d]	3[d]	25	n.	D. Swain.
Princeton	Mercer	2,469	6	26.8	.....	64	5	− 4	30	38	3.70	.....	1.10	21.0	10	9	13	9	w.	H. Scott.
Robertsburg	Putnam	.....	.....	28.6	.....	65	4	− 1	31	43	1.99	.....	0.45	7.0	10	11	2	18	.....	E. P. Turley.
Ryan	Roane	693	5	29.4	.....	74	5	3	30	49	2.78	.....	0.67	12.0	12	8	7	16	.....	Wm. E. Ryan.
Smithfield	Wetzel	.....	5	24.9	.....	65	5	− 2	30	35	3.64	.....	0.62	20.0	12	19	9	3	ne.	H. F. Whisler.
Spencer	Roane	710	6	29.0	.....	75	5†	− 1	31	58	2.04	−0.93	0.50	7.3	8	1	16	14	.....	A. M. McKown.
Sutton	Braxton	.....	4	29.2	.....	70	1†	− 1	31	48	2.51	.....	0.80	17.0	9	9	1	21	.....	J. E. Baughman.
Terra Alta	Preston	3,207	8	28.0	− 1.6	62	2	− 5	30	34	6.00	+ 0.43	1.36	33.5	11	7	5	19	w.	C. F. Dodge.
Union	Monroe	.....	6	26.6	.....	64	4	− 1	31	37	1.35	.....	0.68	5.0	4	.....	.....	.....	.....	Shelton Clarke.
Valley Fork	Clay	.....	6	32.0	.....	70	6	6	30	49	1.83	.....	0.70	14.5	7	4	18	9	.....	Miss Blanche Pierson.
Webster Springs	Webster	1,500	6	28.7	.....	70	5	− 1	31	39	3.59	.....	1.00	24.2	14	4	12	15	nw.	D. H. Hamrick.
Wellsburg	Brooke	1,225	8	25.8	− 4.7	65	5	− 1	30	32	2.99	− 0.14	0.76	15.6	13	8	5	18	w.	C. P. Waugh.
Weston	Lewis	824	14	32.0	− 4.3	72	6	6	30†	47	3.26	− 0.59	0.60	13.4	17	5	8	18	sw.	C. M. Davis.
Wheeling	Ohio	640	25	26.9	.....	68	5	− 2	30	33	1.86	− 0.95	0.60	7.9	14	6	4	21	sw.	Miss M. B. Forsyth.
Williamson	Mingo	660	7	34.2	.....	75	5	− 1	30	43	1.88	− 1.99	0.54	6.0	8	10	6	15	se.	J. F. Keyser.
Ohio.																				
Amesville	Athens	630	6	28.0	.....	72	5	− 5	30	45	2.78	.....	1.07	6.0	11	11	4	16	nw.	F. W. Gibson.
Bangorville§	Richland	1,380	23	24.2	− 5.6	66	5	− 5	30	45	3.69	+ 0.73	1.30	15.0	12	6	14	11	sw.	S. M. Painter.
Bellefontaine	Logan	1,276	16	23.4	− 6.3	65	5	−20	30	30	2.48	− 0.02	0.46	10.7	12	12	7	12	w.	C. L. Lane.
Bladensburg	Knox	1,100	13	23.4	− 6.3	69	5	− 5	30	44	3.05	+ 0.24	1.05	11.0	10	10	10	11	sw.	Miss M. A. Elliott.
Cadiz	Harrison	1,245	6	25.7	.....	67	5	− 5	30	36	2.77	.....	0.91	19.8	12	10	4	17	w.	H. B. McConnell.
California	Hamilton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. W. Ellms.
Cambridge	Guernsey	803	17	27.2	− 3.9	71	5	− 5	30	41	3.00	− 0.18	1.05	12.0	9	7	12	12	.....	Samuel Mehaffey.
Camp Dennison	Hamilton	570	17	26.8	− 6.6	66	5	−11	30	36	2.60	− 0.41	0.76	5.6	13	13	8	10	sw.	H. F. Pinkvoss.
Canal Dover	Tuscarawas	884	16	25.2	− 5.0	66	5	−19	30	40	2.90	− 0.19	0.94	12.0	10	3	17	11	w.	Ed. S. Slingluff.
Canton	Stark	1,065	27	23.7	− 7.3	65	5	− 7	30	28	2.05	− 0.73	0.70	12.7	13	7	5	19	w.	Prof. C. F. Stokey.
Cardington	Morrow	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. A. Beatty.
Chillicothe	Ross	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.94	.....	0.52	6.2	9	17	0	14	.....	Owen L. Brown.

TABLE 1.—*Climatological data for December, 1909. District No. 3*—Continued.

Stations.	Counties	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Ohio—Cont'd.																				
Cincinnati	Hamilton	626	39	28.0	− 8.4	65	5	− 3	30	35	2.40	− 0.53	0.90	5.8	11	6	5	20	sw.	U. S. Weather Bureau.
Circleville	Pickaway	694	15	27.2	− 4.7	68	5	− 5	30	26	3.34	+ 0.62	0.80	6.7	11	9	13	9	w.	Samuel W. Courtright.
Clarington	Monroe	600	7	27.6	.....	74	5	− 4	30	43	2.52	− 1.00	0.71	10.3	16	3	13	15	sw.	Col. S. Tschappat.
Clarksville§	Clinton	1,010	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. T. M. Williams.
Columbus (1)	Franklin	918	32	25.8	− 7.0	67	5	− 4	30	39	2.58	− 0.18	0.91	11.0	13	6	12	13	w.	U. S. Weather Bureau.
Columbus (2)	....do	757	27	25.8	− 5.5	68	5	− 5	34	34	2.68	+ 0.06	0.82	10.3	10	6	12	13	w.	Ohio State University.
Columbus (3)	....do	.....	1	28.4	.....	68	5	− 2	30	34	2.81	.....	0.97	10.9	16	5	13	13	w.	Capt. Paul Mason.
Columbus Reservoir	....do	.....	...	.....	.....	.....	.....	.....	.....	.....	2.41	.....	1.26	7.7	5	5	2	24	sw.	Superintendent.
Coshocton	Coshocton	.....	...	.....	.....	.....	.....	.....	.....	.....	3.05	.....	0.95	.....	11	.....	.....	.....	.....	Mrs. Ada Jeffries.
Dayton (1)	Montgomery	790	27	26.4	− 6.6	67	5	− 5	30	32	2.59	− 0.16	0.66	8.7	13	4	15	12	w.	Edith E. L. Boyer.
Dayton (2)	....do	.....	16	.....	.....	.....	.....	.....	.....	.....	3.03	+ 0.51	0.71	7.0	13	.....	.....	.....	.....	Mrs. D. D. Rist.
Delaware	Delaware	927	13	24.5	− 4.5	68	5	− 9	30	35	2.56	+ 0.04	0.85	9.4	14	8	6	17	sw.	L. L. Hudson.
Demos	Belmont	1,325	20	26.5	− 5.9	70	5	− 3	30	36	2.59	− 0.39	0.82	9.2	12	9	9	13	sw.	J. F. Dysart.
Frankfort	Ross	750	17	29.0	− 4.1	69	5	− 3	30	36	2.61	− 0.18	0.67	4.5	8	10	3	18	sw.	O. A. Cory.
Garretteville	Portage	1,005	25	23.4	− 5.4	61	5†	− 2	20	38	2.09	− 0.80	0.57	14.2	14	5	7	19	w.	S. M. Luther.
Granville	Licking	960	25	25.8	− 5.6	68	5	− 6	30	34	3.78	+ 0.64	1.05	17.3	11	9	6	16	w.	Dr. L. E. Davis.
Gratiot§	....do	1,000	19	25.2	− 6.9	66	5	− 5	30	34	3.52	+ 0.49	1.00	13.7	11	8	10	13	w.	W. B. Longstreth.
Green	Adams	500	17	30.7	− 4.5	75	6	− 5	30	45	2.04	− 1.31	0.83	6.5	8	10	5	16	nw.	W. F. Kenyon.
Green Hill	Columbiana	1,135	18	23.2	− 5.6	66	5	−11	30	39	2.20	− 0.44	0.75	10.2	12	5	9	17	sw.	Jos. E. Bentley.
Greenville	Darke	1,060	24	23.5	− 7.3	60	5	− 9	30	33	3.07	+ 0.68	1.47	10.5	7	5	14	12	s.	G. A. Katzenberger.
Hillsboro	Highland	.....	2	27.8	.....	70	5	− 6	30	33	2.51	.....	0.64	8.0	17	7	8	16	sw.	Carey H. Roush.
Ironton	Lawrence	575	27	30.8	− 4.8	73	5	0	30	40	1.49	− 1.38	0.72	3.0	8	9	7	15	sw.	James Bull.
Jacksonburg	Butler	975	22	25.3	− 6.0	67	5	−11	12	36	4.19	+ 1.63	2.00	12.0	..	7	11	13	nw.	Dr. J. B. Owsley.
Kenton	Hardin	.....	7	23.4	.....	65	5	− 9	30	34	2.55	.....	0.70	10.0	9	6	13	12	sw.	N. S. Martin.
Killbuck	Holmes	1,087	17	24.6	− 4.7	67	5	− 3	30	42	2.71	− 0.08	1.00	5.5	5	6	13	12	nw.	Geo W. Nowells.
Lancaster	Fairfield	898	14	28.2	− 3.1	68	5	− 5	30	31	2.49	− 0.25	0.65	11.5	10	13	2	16	sw.	R. L. Renshaw.
Lawshe	Adams	900	6	27.8	.....	72	5	− 6	31	46	2.53	.....	1.10	5.5	13	13	4	14	w.	Ruth W. Hoffman.
McConnelsville	Morgan	710	26	27.0	− 6.0	72	5	− 2	30	34	3.06	+ 0.12	0.86	11.7	14	4	10	17	sw.	C. H. Morris.
Marietta	Washington	627	66	30.9	− 3.2	69	5	2	30	35	3.24	− 0.13	0.96	6.0	10	8	9	14	s.	Prof. T. D. Biscoe.
Marion	Marion	980	19	25.6	− 4.6	67	5	− 8	30	34	2.90	+ 0.50	0.96	18.3	12	6	10	15	w.	E. H. Raffensperger.
Milfordton	Knox	1,200	17	24.8	− 3.9	68	5	− 6	30	35	3.62	+ 0.67	1.28	15.0	11	8	12	11	sw.	L. H. Burgess.
Milligan§	Perry	875	16	25.8	− 6.1	69	5	− 9	30	42	2.48	− 0.46	0.87	7.5	9	10	9	12	sw.	V. C. Eyeland.
Millport	Columbiana	1,145	18	23.7	− 3.9	65	5	− 6	30	39	1.81	− 0.98	0.54	10.0	12	4	7	20	sw.	G. F. Copeland.
Nellie	Coshocton	850	9	25.5	.....	68	5	− 3	30	36	1.99	− 0.84	1.20	9.0	7	16	7	8	sw.	E. L. Gamertsfelder.
New Alexandria	Jefferson	1,050	25	25.6	− 6.9	66	6	− 4	30	43	3.06	− 0.26	0.96	14.0	7	11	4	16	w.	Mrs. Mary K. Pennell.
New Berlin	Stark	1,100	17	24.0	− 5.1	65	5	−12	30	38	2.06	− 0.55	0.82	10.5	8	11	6	14	w.	Clayton Holl.
New Richmond	Clermont	788	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Waterford	Columbiana	1,053	16	24.2	− 5.0	60	5	− 2	30	35	1.93	− 1.54	.....	14.5	7	12	0	19	sw.	Sam. C. Scott.
North Lewisburg	Champaign	1,095	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. B. Wade.
Orangeville	Trumbull	945	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. N. Ridenour.
Pataskala	Licking	1,050	17	25.4	− 5.2	66	5	− 7	30	33	3.07	− 0.31	0.91	10.9	14	5	15	11	sw.	L. C. Burckhalter.
Philo (1)	Muskingum	1,018	15	26.4	− 4.3	67	5	− 2	30	40	2.02	− 0.40	0.66	7.0	10	7	12	12	sw.	Louis Hardtla.
Philo (2)§	....do	.....	6	27.4	.....	70	5	0	30	44	2.74	.....	1.05	9.2	12	12	7	12	sw.	F. E. Stewart.
Plattsburg	Clark	1,130	17	24.8	− 5.9	66	5	−10	30	26	3.52	+ 0.58	0.80	16.5	10	7	10	14	w.	W. G. Branch.
Pomeroy	Meigs	781	26	29.8	− 5.5	72	5	− 1	30	41	2.26	− 0.14	0.76	.....	8	6	12	13	sw.	Dr. H. A. Schirrman.
Portsmouth	Scioto	527	79	29.0	− 7.3	71	5	− 1	30	33	2.78	− 0.59	1.20	5.0	10	11	4	16	w.	J. B. Gish.
Rittman	Wayne	990	17	24.2	− 5.0	65	5	− 8	30	30	2.18	− 0.45	1.02	8.5	11	6	6	19	w.	T. B. Arnett.
Shenandoah§	Richland	1,100	18	21.9	− 6.7	65	5	− 7	30	39	1.85	− 0.56	0.67	6.8	12	1	12	18	sw.	H. B. Blake.
Sidney	Shelby	985	15	25.0	− 3.9	64	5	−10	30	33	2.76	− 0.10	0.60	13.2	11	9	5	17	sw.	Miss M. C. Sheridan.
Somerset	Perry	1,080	11	24.2	− 7.5	67	5	− 7	30	36	3.05	+ 0.47	0.65	12.5	12	10	7	14	s.	W. A. Webster.
Springfield	Clark	.....	...	.....	.....	.....	.....	.....	.....	.....	3.25	+ 0.64	0.69	8.0	12	5	16	10	sw.	H. R. McClintock.
Summerfield	Noble	.....	4	26.6	.....	69	5	0	30	42	3.19	.....	0.80	10.5	13	2	13	16	sw.	D. D. Thomas.
Thurman	Gallia	696	17	29.8	− 4.8	67	5	− 2	30	51	1.91	− 1.00	0.85	4.0	7	6	10	15	w.	Prof. J. H. Williams.
Urbana	Champaign	1,031	14	24.4	− 3.6	67	5	−14	30	33	2.06	− 0.26	0.57	12.4	10	8	10	13	sw.	M. D. McCorkle.
Warren	Trumbull	.....	12	25.0	− 5.1	61	5	1	30	34	3.06	− 0.20	0.97	15.1	13	6	7	18	sw.	D. Lorbach.
Waverly§	Pike	590	27	28.8	− 5.4	74	5	− 7	30	41	2.61	− 0.38	0.86	10.2	13	13	3	15	sw.	Charles Michener.
Waynesville	Warren	700	25	25.6[a]	− 4.3	68[a]	5	−10[a]	30	27[a]	2.92	+ 0.13	0.75[a]	8.5[a]	9[a]	10	8	13	sw.	Experiment Station.
Wooster	Wayne	1,030	25	25.3	− 5.5	66	5	− 6	30	35	2.55	− 0.23	0.99	9.8	14	3	3	25	sw.	G. R. Patton.
Youngstown	Mahoning	.....	..	.....	.....	.....	.....	.....	.....	.....	1.95	.....	0.50	17.2	11	16	0	15	w.	S. G. Sprague.
Zanesville	Muskingum	.....	...	.....	.....	.....	.....	.....	.....	.....	2.56	− 0.26	0.76	8.6	14	10	0	21	w.	
Virginia.																				
Big Stone Gap	Wise	1,540	18	31.8	− 4.2	68	5	− 5	30	36	2.72	− 1.15	0.90	8.0	5	6	4	21	n.	John W. Fox, sr.
Blacksburg	Montgomery	2,170	18	27.8	− 7.0	67	5	3	30	42	2.20	− 4.06	0.92	3.6	6	10	10	11	w.	Agric. Experiment Sta.
Burksgarden	Tazewell	3,250	14	26.4	− 5.8	59	1	− 5	30	46	2.14	− 1.77	1.08	4.0	4	13	1	17	w.	C. H. Greever.
Elk Knob	Lee	3,243	6	30.1	.....	65	5	− 4	30	25	2.69	.....	0.95	5.0	7	11	2	18	sw.	Henry Nicoll.
Galax	Grayson	2,300	....	31.2	.....	65	5	1	30	38	2.78	.....	1.74	2.2	4	18	7	6	nw.	E. C. Williams.
Ivanhoe**§	Wythe	2,028	5	29.8	.....	60	5	4	30	30	2.76	.....	1.20	2.8	11	12	12	7	w.	Miss Alice G. Jewett.
Marion**	Smyth	2,224	14	31.2	− 5.3	72	5	− 2	30	40	1.87	− 1.25	0.67	9.0	7	8	13	10	sw.	S. W'n. State Hospital.
Max Meadows	Wythe	2,028	13	27.4[c]	− 8.5	.....	.....	4	30	30[c]	1.72	.....	0.67	1.5	5	12	7	12	w.	James M. Graham.
Mendota	Washington	1,350	....	.....	.....	.....	.....	.....	.....	.....	2.85	.....	0.89	4.8	9	9	4	18	w.	Frank M. Baker.
Radford	Montgomery	1,773	....	.....	.....	.....	.....	.....	.....	.....	2.38	.....	1.38	1.0	4	.....	.....	.....	.....	Arthur Roberts.
Speers Ferry	Scott	1,221	....	.....	.....	.....	.....	.....	.....	.....	3.44	.....	1.26	12.6	8	.....	.....	.....	.....	Mrs. L. E. Venable.
Wytheville	Wythe	2,293	16	29.8	− 3.2	67	5	1	30	36	2.02	− 0.64	0.90	2.0	6	13	8	10	w.	U. S. Weather Bureau.
North Carolina.																				
Andrews	Cherokee	.....	....	34.3	.....	66	3	0	30	45	5.01	.....	2.43	4.5	7	12	8	11	sw.	J. D. Link.
Asheville	Buncombe	2,250	30	32.7	− 5.1	66	4	3	30	34	3.19	− 0.87	1.41	0.6	10	16	9	6	nw.	U. S. Weather Bureau.
Banners Elk	Watauga	3,750	1	28.4	.....	62	5	− 5	30	38	4.31	.....	1.30	17.0	7	13	6	12	w.	T. L. Lowe.
Brevard	Transylvania	2,230	8	33.8	.....	64	4	2	30	38	7.11	.....	3.20	1.8	5	15	9	7	n.	W. E. Breese.
Bryson City	Swain	2,000	....	.....	.....	.....	.....	.....	.....	.....	4.45	+ 0.18	0.98	11.2	10	.....	.....	.....	.....	D. K. Collins.
Hendersonville	Henderson	2,167	13	34.4	− 4.2	69	4	5	30	39	5.70	+ 6.07	2.80	1.5	8	19	7	5	nw.	T. W. Valentine.
Hot Springs	Madison	1,326	11	34.7	− 7.3	71	4	3	30	35	2.41	.....	1.05	8.5	7	17	11	3	w.	P. A. Garner.
Jefferson	Ashe	2,800	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	G. T. Colvard.
Marshall	Madison	1,646	8	34.6	.....	70	4	4	30	41	1.90	.....	1.07	3.5	4	.....	.....	.....	.....	W. E. Finley.
Murphy	Cherokee	1,614	....	.....	.....	.....	.....	.....	.....	.....	4.11	− 1.10	1.96	12.0	6	.....	.....	.....	.....	Miss Julia Campbell.
Rock House§	Macon	2,800	17	34.1	− 5.4	66	4	− 1	30	29	8.56	+ 1.39	3.63	5.5	7	16	9	6	nw.	B. C. Hawkins.
Sunburst	Haywood	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Lucien Buck.
Waynesville	....do	2,756	15	28.6[b]	− 9.8	70	5	− 4	30	39	3.70	− 0.11	1.44	3.6	8	15	4	12	ne.	J. P. Swift.
Georgia.																				
Diamond	Gilmer	2,020	16	35.2[a]	− 6.4	69	4	7	30	29	6.79	+ 2.30	3.45	7.0	10	13	7	11	.....	R. A. Kimzey.
LaFayette	Walker	781	2	35.4	.....	69	1	7	30	31	5.92	.....	2.75	2.1	7	11	5	15	nw.	Ralph A. Snow.
Alabama.																				
Albertville	Marshall	1,042	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Prof. J. B. Hobdy.
Bridgeport	Jackson	660	....	.....	.....	.....	.....	.....	.....	.....	4.52	.....	1.59	2.7	7	9	2	20	n.	Miss Maggie Rinkle.
Decatur	Morgan	573	27	34.4[c]	− 8.7	.....	.....	10	30	35[f]	6.61	+ 2.63	2.02	3.6	11	8	3	20	n.	Ernest A. Carriger.
Florence	Lauderdale	563	25	37.3	− 5.7	73	4	10	21†	32	4.29	+ 0.04	1.15	5.1	10	14	6	11	s.	G. H. Smith.
Guntersville	Marshall	580	....	.....	.....	.....	.....	.....	.....	.....	4.30	.....	2.04	2.2	13	15	1	15	n.	L. S. Long.
Madison	Madison	573	15	36.2	− 6.8	74	7	7	30	32	4.57	− 0.13	1.30	5.5	8	14	7	10	nw.	Albert Klish.

TABLE 1.—*Climatological data for December, 1909. District No. 3*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Alabama—Cont'd.																				
Riverton	Colbert	360	12	33.3	− 7.9	76	4	6	29	40	4.79	− 1.08	2.04	1.5	6	16	4	11	n.	E. R. Nelles.
Scottsboro	Jackson	652	26	36.8[c]	− 6.0	69[c]	4	6[c]	29	33[c]	3.83	− 0.68	1.52	3.8	9	13	7	11	.....	Miss Irene Caldwell.
Tuscumbia	Colbert	488	27	33.2	−10.6	70	4	10	21	41	4.28	− 0.26	1.21	5.0	8	14	0	17	nw.	Samuel Moore.
Tennessee.																				
Ashwood	Maury	725	31	34.7	− 6.6	70	4	7	30	32	3.12	− 0.95	0.80	3.0	9	8	5	18	n.	Mrs. J. W. Fleming.
Benton	Polk	880	23	35.5	− 6.4	68	5	6	30	36	3.40	− 0.74	1.50	3.0	7	10	12	9	n.	G. L. Williams.
Byrdstown	Pickett	1,026	15	32.0	− 6.9	68	4	1	30	27	1.65	− 2.85	0.50	3.0	7	9	7	15	w.	Dr. Jno. C. Chilton.
Carthage	Smith	500	27	34.2	− 5.6	73	4	2	30	32	3.92	− 0.06	1.64	2.7	11	9	8	14	nw.	E. C. Pickering.
Cedar Hill	Robertson	625	12	32.8	− 6.9	73	4	2	30	29	4.30	− 0.03	1.50	0.5	7	11	9	11	n.	J. F. Ruffin.
Chattanooga	Hamilton	808	31	36.5	− 6.1	62	7	9	30	32	5.39	+ 1.03	1.88	7.0	12	12	6	13	nw.	U. S. Weather Bureau.
Clarksville	Montgomery	520	43	34.2	− 6.2	73	5	5	30	33	3.03	− 1.52	0.81	5.0	11	14	6	11	n.	Prof. Jas. A. Lyon.
Decatur	Melgs	850	14	34.0[c]	− 5.8	57	6	4	30	31	3.85	− 1.29	1.45	3.5	11	12	6	13	sw.	J. W. Lillard.
Dickson	Dickson	800	13	33.0	− 5.1	74	4	1	30	36	4.34	+ 0.04	1.79	T.	8	9	10	12	n.	N. R. Sugg.
Dover	Stewart	.....	15	33.6	− 5.9	76	4	4	30	38	3.27	− 1.73	0.83	T.	8	10	7	14	n.	A. M. Tippit.
Dunlap	Sequatchee	726	...	35.9	.....	72	4	7	30	38	4.08	.....	1.56	1.9	9	10	6	15	.....	S. B. Boyd.
Elizabethton	Carter	1,575	20	.....	.....	.....	.....	.....	.....	.....	1.48	− 1.76	0.70	4.4	7	11	12	8	w.	Lee F. Miller.
Erasmus	Cumberland	1,850	13	29.8	− 6.1	72	4	− 4	30	43	3.80	− 1.85	0.98	3.2	11	12	8	11	w.	Mrs. E. D. Ashley.
Florence	Rutherford	560	28	34.4	− 6.4	70	4	5	30	32	2.52	− 1.48	0.95	2.0	8	10	2	19	n.	Erastus P. Bell.
Franklin	Williamson	655	18	33.6	− 6.3	69	1	6	30	31	3.96	− 0.63	1.55	0.5	8	8	5	18	.....	J. L. Parkes, jr.
Harriman	Roane	841	14	33.3	− 5.5	60	4	6	30	31	3.01	− 1.59	1.06	1.0	4	7	10	14	.....	Robert R. Ayres.
Hohenwald	Lewis	983	24	33.8	− 5.7	73	5	3	30	37	3.66	− 1.54	1.34	3.0	10	10	11	10	nw.	John Lutzelman.
Iron City	Lawrence	.....	12	34.4	− 6.0	69	4	3	30	37	2.97	− 3.03	0.57	3.0	8	6	18	7	nw.	Capt. H. P. Seavy.
Johnsonville	Humphreys	364	14	33.4	− 6.2	73	4	4	30	36	3.45	− 0.85	0.86	T.	11	10	9	12	s.	Miss Sallie B. Mathews.
Jonesboro	Washington	1,740	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	James H. Epps, jr.
Knoxville	Knox	977	39	34.0	− 5.7	63	5	8	30	27	2.49	− 1.67	0.97	1.4	8	8	14	9	sw.	U. S. Weather Bureau.
Lebanon	Wilson	522	....	34.6	.....	73	4	1	30	38	2.99	.....	1.40	0.5	6	9	5	17	s.	Logan Fields.
Lewisburg	Marshall	727	16	34.0	− 7.3	74	4	4	30	41	3.44	− 0.99	1.31	2.5	10	10	8	13	nw.	Dr. R. D. Crutcher.
Lynnville	Giles	770	21	34.0	− 7.0	68	4	7	30	31	2.72	− 1.99	1.35	2.0	8	8	12	11	n.	Col. J. H. Burrow.
McMinnville	Warren	1,011	26	34.2	− 6.6	75	4	− 1	30	33	3.59	− 0.87	1.30	9.4	11	9	11	11	n.	J. T. Sparkman.
Maryville	Blount	1,050	15	34.8	− 5.1	66	5	5	30	33	2.84	− 2.06	1.09	2.4	9	10	13	8	w.	Mrs. F. E. Benedict.
Mountain City	Johnson	2,486	13	30.6	− 3.4	70	5	− 6	31	46	1.66	− 2.22	0.90	5.0	5	14	14	3	.....	E. E. Barry.
Nashville	Davidson	654	39	34.8	− 6.3	72	4	6	30	30	2.90	− 0.92	1.24	0.8	11	8	8	15	w.	U. S. Weather Bureau.
Newport	Cocke	1,280	19	32.5	− 6.1	56	5†	5	30	25	1.35	− 2.05	0.75	3.0	3	14	8	9	w.	Dr. C. T. Burnett.
Palmetto	Bedford	770	16	34.2	− 7.0	72	4	5	30	37	2.56	− 2.20	1.05	2.5	9	10	8	13	n.	Mrs. Ross Woods.
Pinewood	Hickman	.....	3	35.0	.....	75	4	2	30	44	4.33	.....	1.67	T.	8	8	13	9	n.	Miss Carrie Cash.
Pope	Perry	.....	13	31.1	− 9.0	78	5	5	29	45	4.80	− 0.60	2.30	4.0	5	13	8	10	n.	Miss Bessie Howard.
Rogersville	Hawkins	1,150	25	32.6	− 5.3	68	5	1	30	38	2.42	− 1.08	0.80	2.0	6	12	7	12	w.	Fred Beal.
Rugby	Morgan	1,410	22	30.5	− 6.9	70	4	− 5	30	41	3.85	− 0.54	1.25	8.0	7	10	6	15	n.	S. G. Wilson.
Savannah	Hardin	442	26	38.1	− 3.8	72	5	9	21	36	4.57	− 0.17	1.50	2.0	8	17	0	14	nw.	W. F. Bell.
Sevierville	Sevier	.....	4	33.0	.....	66	5	1	30	40	1.90	.....	0.72	3.5	8	7	6	18	sw.	H. O. Eckel.
Sewanee	Franklin	2,000	15	32.2	− 6.2	68	3	0	30	31	4.66	0.00	2.43	4.0	4	8	1	22	n.	University of South.
Sparta	White	920	4	34.4	.....	72	5	2	30	38	2.27	.....	1.30	2.2	7	11	6	14	w.	E. H. Hull.
Springdale	Claiborne	1,058	....	30.8	− 7.4	67	4	− 5	30	41	2.51	− 1.54	1.20	6.5	6	1	5	25	w.	Mrs. Lucy E. Breeding.
Springville	Henry	377	7	33.4	.....	73	4	4	30	33	4.92	.....	1.44	0.2	10	12	7	12	n.	H. A. Boden.
Tellico Plains	Monroe	.....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tullahoma	Coffee	1,075	21	34.6	− 5.1	70	4	2	30	36	3.41	− 1.91	1.53	2.4	7	9	15	7	n.	R. T. Moore.
Waynesboro	Wayne	753	23	35.4	− 5.4	71	4	5	30	34	4.23	− 0.08	1.30	3.0	9	10	9	12	s.	H. C. Boyd.
Widersville	Henderson	.....	12	34.6[b]	− 5.8	72	4	7	29	33	3.56	− 1.80	0.90	1.3	7	8	5	18	s.	W. R. Wilson.
Yukon	Lincoln	850	14	34.9	− 6.0	69	4	6	30	29	3.80	− 1.42	1.35	.....	7	12	6	13	n.	W. P. Watson.
Kentucky.																				
Alpha	Clinton	.....	15	34.6[a]	− 5.4	66	5	5[a]	30	32[a]	4.77	+ 0.07	1.15	8.0	8	12	4	15	n.	W. W. Hicks.
Anchorage	Jefferson	700	8	27.8	.....	70	4	− 6	30	34	2.78	.....	0.54	3.4	10	15	2	14	nw.	C. E. Barrett.
Bardstown	Nelson	637	13	30.0	− 6.2	70	4	− 3	30	35	3.78	− 0.19	0.97	1.0	10	9	2	20	sw.	G. M. Talbott.
Beattysville	Lee	650	6	28.5	.....	72	4	−11	30	49	2.54	.....	0.84	10.0	10	5	8	18	w.	G. W. Cann.
Beaverdam	Ohio	441	6	28.8	.....	73	4	− 4	30	38	2.77	.....	.....	3.2	9	11	2	18	nw.	T. S. Woodward.
Berea	Madison	1,070	8	32.2	.....	79	4	− 5	29	41	1.17	.....	0.31	4.5	9	7	8	16	sw.	C. F. Rumold.
Bowling Green	Warren	500	20	31.0	− 8.2	72	4	3	29†	42	3.73	− 0.44	1.00	5.2	13	8	5	18	sw.	Mrs. L. G. Causey.
Burnside	Pulaski	589	19	.....	.....	.....	.....	.....	.....	.....	3.94	− 0.08	1.20	2.0	10	14	2	15	ne.	G. M. Estes.
Cadiz	Trigg	.....	7	32.1	.....	67	4	− 3	30	32	3.95	.....	0.67	.....	10	14	12	5	.....	John S. Lawrence.
Calhoun	McLean	397	6	31.2	.....	72	4	− 2	30	27	3.30	.....	0.73	0.5	8	7	11	13	s.	W. A. Taylor.
Catlettsburg	Boyd	544	16	32.8[b]	− 3.1	68[b]	4	− 4[b]	30	39[b]	2.04	− 1.36	0.44	4.0	11	17	3	11	nw.	Chas. N. Bruns.
Earlington	Hopkins	370	20	29.3	− 9.9	72	4	− 4	30	46	2.76	− 1.16	0.88	1.5	9	13	0	18	nw.	J. B. Atkinson.
Edmonton	Metcalfe	600	18	30.2	− 7.4	67	4	−10	30	34	4.28	− 0.21	1.15	5.2	9	8	10	13	w.	Miss Lee Ray.
Eubank	Pulaski	1,177	15	28.4	− 6.8	68	4	− 3	30	41	3.97	+ 0.91	1.20	5.6	12	9	3	19	se.	W. H. Henderson.
Falmouth	Pendleton	530	20	.....	.....	.....	.....	.....	.....	.....	2.65	− 0.52	0.75	4.2	14	13	2	16	w.	J. V. Oldham.
Farmers	Rowan	668	4	30.2	.....	73	5	−14	30	48	2.25	.....	0.97	3.5	8	7	8	16	w.	Miss Gertrude Sorrell.
Frankfort	Franklin	560	19	30.4	− 6.7	66	4	2	30	33	3.46	+ 0.09	1.02	3.4	12	8	4	19	sw.	Gustave Schaefer.
Franklin	Simpson	691	16	32.4	− 8.0	70	4	0	30	29	3.82	− 0.18	1.52	1.0	8	5	11	15	sw.	J. E. Newman.
Greensburg	Green	581	17	26.7	− 9.4	72	4	− 7	30	43	4.19	+ 0.25	1.40	2.0	10	11	0	20	s.	L. C. Alcorn.
Highbridge	Jessamine	762	7	.....	.....	.....	.....	.....	.....	.....	3.20	.....	0.96	.....	12	11	3	17	.....	Miss Lulu Wood.
Hopkinsville	Christian	524	13	32.0	− 4.9	69	4	1	27	27	4.00	− 0.76	1.40	1.5	7	11	0	20	w.	W. F. Randle.
Irvington	Breckinridge	.....	11	30.0	− 5.4	66	4	− 2	30	28	3.09	− 0.71	0.77	1.7	9	11	4	16	nw.	W. J. Piggott.
Leitchfield	Grayson	635	14	29.1	− 6.0	69	4	− 7	30	29	3.80	− 1.07	0.96	2.5	9	11	7	13	sw.	John E. Stone.
Lexington	Fayette	989	22	27.8	− 8.6	65	4	− 4	30	31	2.77	− 0.55	0.78	5.0	10	6	5	20	w.	U. S. Weather Bureau.
Loretto	Marion	681	12	30.3	− 5.9	69	4	3	23	35	3.40	− 0.86	0.95	.....	7	19	0	12	.....	Loretto Academy.
Louisville	Jefferson	525	37	29.4	− 8.7	67	4	1	30	29	2.81	− 0.92	0.70	1.7	13	8	17	6	w.	U. S. Weather Bureau.
Marion	Crittenden	.....	15	30.4	− 7.0	70	4	− 5	30	30	3.66	− 0.07	0.79	.....	.....	8	5	18	nw.	B. C. Paris.
Maysville	Mason	524	13	27.4	− 6.7	72	5	− 4	30	43	2.62	− 1.11	1.14	6.8	13	13	3	15	sw.	Mrs. M. D. Marsh.
Middlesboro	Bell	1,128	16	31.7	− 5.4	60	1†	3	30	33	2.62	− 1.37	0.88	2.0	7	22	6	3	.....	B. H. Perkins.
Mt. Sterling	Montgomery	930	20	28.6	− 6.7	67	5	− 2	30	32	3.71	− 0.21	1.65	2.0	9	8	9	14	n.	James O'Connell.
Owensboro	Daviess	479	13	28.2	− 8.3	69	4	1	30	40	3.11	− 0.63	0.74	1.5	8	9[a]	2[a]	19[a]	nw.	Henry S. Berry.
Owenton	Owen	700	13	27.8[c]	− 6.2	64[c]	5	− 5[a]	30	39[a]	3.10	− 1.08	.....	3.0	.....	1	20	10	.....	J. T. Walker.
Paducah	McCracken	341	17	34.4[a]	− 4.6	68[a]	3	10[f]	9	29[a]	3.18[f]	.....	1.30[f]	.....	.....	12[f]	1[f]	12[f]	n.[f]	W. R. Wright.
Pikeville	Pike	.....	...	.....	.....	.....	.....	.....	.....	.....	1.91	.....	0.50	8.2	11	9	5	17	nw.	A. R. Williams.
Richmond	Madison	926	20	30.6	− 6.8	68	1†	− 3	30	32	3.54	− 0.10	1.47	.....	11	8	6	17	.....	I. W. Crooke.
St. John	Hardin	777	13	27.0	− 7.7	67	4	− 4	30	44	3.69	− 0.53	0.83	3.4	11	13	4	14	.....	Bethlehem Academy.
Scott	Kenton	.....	...	25.8	− 6.7	65	5	− 6	30	34	3.11	− 0.09	0.96	6.3	11	9	6	16	sw.	E. B. Wilson.
Shelby City	Boyle	1,087	15	28.8	− 6.4	70	4	−11	30	40	2.97	− 1.29	0.95	1.7	9	12	2	17	sw.	W. E. Grubbs.
Shelbyville	Shelby	739	20	28.0	− 7.8	63	4†	− 4	30	35	3.31	− 0.31	0.90	1.3	14	3	8	20	w.	Dr. H. W. Preissler.
Taylorsville	Spencer	422	7	28.5	.....	65	4	− 9	30	31	3.09	.....	0.72	2.4	10	13	3	15	w.	E. D. Bourne.
Williamsburg	Whitley	939	12	32.6	− 5.6	75	4	6	30	39	2.05	− 2.04	0.86	2.4	9	11	2	18	nw.	Mrs. Anna L. Adkins.
Williamstown	Grant	943	7	28.3	.....	63	4†	− 6	30	43	2.82	.....	0.79	0.4	12	13	2	16	.....	Mrs. Sarah E. Carter.
Indiana.																				
Anderson	Madison	892	12	23.1	− 7.0	62	4	−11	30	32	2.54	− 0.29	0.63	14.9	11	9	7	15	sw.	W. H. Stanton.
Bloomington	Monroe	744	11	23.6	− 9.2	62	4	−11	30	45	4.75	+ 1.12	1.02	7.9	13	7	5	19	sw.	E. E. Ramsey.
Bluffton	Wells	835	6	21.6[b]	.....	58[b]	5	−13[b]	30	28[b]	2.41	.....	0.80	.....	8	.....	.....	.....	.....	C. C. Dean.
Butlerville	Jennings	767	18	26.2	− 7.7	62	4†	− 9	30	26	3.77	+ 0.77	0.78	7.3	10	10	9	12	w.	C. P. Hole.

TABLE 1.—*Climatological data for December, 1909. District No. 3*—Continued.

Stations	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Precipitation, in inches. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
Indiana—Cont'd.																				
Cambridge City	Wayne	941	10	22.7	− 8.2	65	4	−14	30	39	3.00	+ 0.33	0.80	10.0	12	14	1	16	w.	Charles Lemberger.
Columbus	Bartholomew	632	18	25.0	− 8.4	62	4	−11	30	33	2.91	+ 0.18	0.79	4.5	12	6	6	19	sw.	John A. Perry.
Connersville	Fayette	769	20	24.9	− 7.2	63	4	−11	30	35	2.36	− 0.46	0.71	6.6	8	14	6	11	w.	C. C. Hibbs
Delphi	Carroll	668	16	19.8	−10.8	64	4	−17	30	37	3.04	+ 0.78	0.64	19.5	15	8	2	21	....	R.L.Higginbotham & Son
Eminence	Morgan	782	....	23.2	.....	62	1	−10	30	26	2.29	.....	0.40	10.8	13	8	12	10	w.	Dr. E. E. Kelso.
Evansville	Vanderburg	386	10	29.2	− 7.2	69	4	1	30	31	3.48	− 0.35	1.14	5.8	11	6	14	11	w.	U. S. Weather Bureau
Farmersburg§	Sullivan	....	....	25.4[b]	.....	60[b]	4	−12[b]	30	27[b]	2.71	.....	0.52	7.5	10	12	2	16	sw.	Maurice Yeager.
Farmland	Randolph	1,101	20	24.4	− 7.9	60	4	− 8	30	36	2.48	− 0.09	0.80	.....	12	13	6	12	w.	W. J. Davisson.
Greenfield	Hancock	905	....	23.9	.....	60	4†	−10	30	28	3.10	.....	0.73	6.5	7	1	20	10	w.	W. C. Goble.
Greensburg	Decatur	954	5	25.4	.....	63	4	−10	30	31	3.08	.....	0.65	9.5	8	16	3	12	sw.	Charles H. Ewing.
Heltonville	Lawrence	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. L. Palmer.
Huntingburg	Dubois	....	....	29.8	.....	67	4	− 2	30	29	4.62	.....	1.54	.....	7	.....	.....	.....	.....	H. Dufendach.
Huntington	Huntington	741	11	22.2	− 6.4	61	5	−10	30	32	2.93	+ 0.32	1.10	16.5	13	7	11	13	w.	Charles McGrew.
Indianapolis	Marion	822	33	23.4	− 9.2	60	4	− 8	30	31	2.90	− 0.14	0.70	8.2	11	6	8	17	sw.	U. S. Weather Bureau.
Jeffersonville§	Clark	455	12	29.5	− 7.4	65	4	1	30	31	3.05	− 0.26	0.70	0.5	11	10	9	12	w.	John C. Loomis.
Judyville	Warren	....	....	19.7[a]	.....	59	4†	−22[a]	30	35[a]	3.16	.....	1.45	16.2	8	7	6	18	w.	D. R. Warrick.
Kokomo	Howard	840	11	22.4	− 7.7	60	4	−12	30	31	2.53	− 0.22	0.67	13.0	7	7	10	14	sw.	John W. Doty.
Lafayette	Tippecanoe	617	22	21.0	− 9.1	61	4	−17	30	31	3.06	+ 0.57	0.58	21.2	15	10	1	20	sw.	W. J. Jones, Jr.
Logansport	Cass	620	17	22.3	− 9.0	60	4	−13	30	29	2.76	+ 0.44	0.73	15.5	8	11	0	20	e.	Charles Massena.
Madison	Jefferson	460	11	28.8	− 6.3	64	4	− 6	30	30	3.75	+ 0.45	0.85	4.0	12	14	3	14	w.	J. Cooperider.
Marengo	Crawford	363	19	27.0	− 9.3	65	4	−10	30	33	3.53	− 0.67	0.80	3.5	9	8	5	18	w.	J. M. Johnson.
Marion	Grant	814	14	21.8	− 9.7	62	4	−13	30	33	3.53	+ 1.32	0.79	19.7	12	5	8	18	sw.	James F. Hood.
Markle	Huntington	814	10	21.3	− 6.6	60	5	−14	30	30	2.60	+ 0.02	0.70	15.0	8	8	8	15	sw.	I. S. Shideler.
Mauzy	Rush	980	21	23.4	− 6.8	63	4	−12	30	30	3.17	− 0.14	0.70	12.9	12	7	8	16	w.	E. Kirkwood.
Moores Hill	Dearborn	....	....	25.6	.....	61	4	−10	30	26	2.83	.....	0.64	8.2	14	12	15	4	nw.	W. S. Bigney.
Mount Vernon	Posey	410	15	23.0[e]	−13.9	56[e]	6	− 2[e]	30	33[e]	3.12	+ 0.17	1.08	4.0	9	15	0	16	w.	C. M. Spencer.
Paoli	Orange	611	5	27.8	.....	62	4	−14	30	33	3.65	.....	1.30	3.5	8	9	9	13	sw.	James A. Gillum.
Princeton	Gibson	481	19	27.1	− 8.2	62	5	− 4	30	24	3.64	+ 0.49	1.68	6.5	8	12	6	13	.....	Elisha Jones.
Richmond	Wayne	972	17	24.2	− 7.0	61	4	−10	30	32	2.36	− 0.45	0.50	8.3	12	7	8	16	.....	Walter Vossler.
Rochester	Fulton	775	....	22.4	.....	55	4	−10	30	33	3.34	.....	1.30	20.1	9	7	4	20	.....	J. P. Keith.
Rockville	Parke	722	15	22.8	− 9.8	60	4†	−13	30	33	2.44	− 0.17	0.41	11.0	10	5	6	20	w.	Dr. W. N. Wirt.
Rome	Perry	370	....	27.0	.....	73	4	− 4	30	34	3.41	.....	0.82	.....	.....	2	5	24	w.	Adam Anspach.
Salamonia	Jay	....	....	23.2	.....	62	4	−11	30	26	2.38	.....	0.55	11.5	12	4	2	25	nw.	C. V. Skinner.
Salem	Washington	717	11	27.0	− 5.4	65	4	−12	30	33	4.18	+ 0.86	1.25	6.0	11	10	6	15	w.	E. S. Allen.
Scottsburg	Scott	570	10	29.0	− 7.3	64	4	− 2	30	31	3.32	+ 0.07	1.06	7.0	11	7	10	14	w.	F. H. Park.
Seymour	Jackson	610	14	26.4	− 8.8	65	4	−10	30	33	3.60	+ 0.67	1.04	4.9	11	13	9	9	w.	J. R. Blair.
Shelbyville	Shelby	....	....	24.8	.....	60	4	−16	30	29	2.43	.....	0.51	9.0	11	2	19	10	w.	B. F. Crouch.
Terre Haute	Vigo	498	11	25.2	− 7.8	61	4	− 7	30	31	3.10	+ 0.45	0.56	10.5	10	8	5	18	sw.	R. G. Gillum.
Veedersburg	Fountain	612	....	22.6	.....	61	4	−13	30	26	2.96	.....	0.60	12.0	8	13	3	15	w.	L. A. Culver.
Vevay	Switzerland	525	19	29.2	− 7.3	65	4†	− 2	30	31	2.35	− 0.52	0.50	8.0	10	9	8	14	nw.	Miss Frederica Boerner.
Vincennes	Knox	431	10	25.8	− 7.5	64	4	− 6	30	32	4.95†	+ 1.87	1.25	4.5	8	9	1	21	w.	G. V. List.
Washington	Daviess	484	7	26.9	.....	64	4	− 3	30	41	3.90	.....	1.06	2.5	8	10	1	20	w.	H. B. Turrell.
Whitestown	Boone	....	....	21.9	− 6.8	59	4	−13	30	30	2.97	+ 0.46	0.55	10.0	9	1	19	11	w.	C. A. Stevenson.
Winona Lake	Kosciusko	....	....	21.1	.....	52	4†	−13	30	27	2.62	.....	0.58	16.6	13	2	15	14	sw.	Rev. A. A. Young.
Worthington	Greene	526	20	25.2	− 7.8	61	5†	− 9	30	33	4.05	+ 0.98	0.85	.....	.....	5	10	16	w.	C. A. Geckler.
Illinois.																				
Albion	Edwards	531	17	26.2	− 7.5	64	4	− 7	30	27	3.28	− 0.02	1.23	4.0	9	12	4	15	w.	B. F. Michels.
Cairo	Alexander	359	33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Weather Bureau.
Charleston	Coles	720	18	24.1	− 8.2	69	1	− 4	9	33	2.63	+ 0.24	0.37	12.2	12	4	11	16	w.	Jacob B. Dacey.
Equality	Gallatin	421	9	30.2	.....	68	4	− 3	30	31	3.86	.....	1.20	5.0	9	10	10	11	.....	Dr. L. W. Gordon.
Fairfield	Wayne	495	18	27.0	− 7.1	66	4	− 6	30	32	2.34	− 0.51	0.61	4.5	6	13	1	17	nw.	George A. Tromly.
Flora	Clay	495	23	25.2	− 8.7	62	4	− 8	30	27	2.45	− 0.36	0.94	6.5	8	10	7	14	nw.	Jos. S. Peak.
Golconda	Pope	500	30	29.6	− 7.6	66	4	− 5	30	30	5.23	+ 1.66	1.01	4.5	10	10	6	15	nw.	Dr. D. Lawrence.
Hooperston	Vermillion	715	7	21.1	.....	59	4	−13	30	31	3.61	.....	0.84	18.6	15	9	4	18	.....	S. F. Hoskinson.
McLeansboro	Hamilton	462	26	27.3	− 8.4	68	4	− 5	30	29	3.58	+ 0.52	1.46	6.0	9	11	7	13	nw.	C. C. Judd.
Martinsville	Clark	630	20	22.7	−10.5	62	2	−10	30	29	3.03	+ 0.80	1.00	10.0	10	6	8	17	nw.	G. M. Daugherty.
New Burnside	Johnson	556	14	29.8	− 6.1	66	4	− 5	30	31	3.06	− 0.21	1.60	1.2	5	10	10	11	n.	George Harris.
Olney	Richland	486	19	26.3	− 8.7	63	4	− 6	30	28	3.28	+ 0.47	1.13	6.2	9	8	7	16	w.	Victor E. Phillips.
Palestine	Crawford	500	26	27.0	− 5.7	61	4	− 9	30	32	3.61	+ 0.76	0.76	.....	6	5	8	18	w.	Alexander Charley.
Paris	Edgar	600	12	22.0	− 7.0	61	4	− 9	30	40	2.92	+ 0.48	0.65	14.0	8	7	10	14	sw.	H. W. Twyman.
Philo	Champaign	700	24	20.3	− 9.5	60	4	−14	30	34	2.37	+ 0.12	0.52	13.8	8	7	8	16	w.	H. A. Burr.
Rantoul	do.	768	18	20.8	− 8.3	60	4	−13	30	33	2.36	+ 0.22	0.60	16.0	7	10	7	14	nw.	Wm. Breiner.
Robinson	Crawford	500	9	26.4	.....	60	4	− 6	30	28	2.90	.....	0.65	7.0	8	5	8	18	sw.	A. P. Woodworth.
Sumner§	Lawrence	459	....	26.5	.....	62	4	− 5	30	30	3.10	.....	1.23	6.6	9	10	4	17	nw.	O. A. Fyffe.
Tuscola	Douglas	644	10	22.0	− 7.6	61	1	−13	30	39	2.74	+ 0.11	0.83	19.0	9	13	2	16	w.	E. W. Lester.
Urbana§	Champaign	725	7	20.0	.....	60	4	−13	30	36	2.55	.....	0.65	18.0	9	3	19	9	w.	Prof. J. G. Mosier.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
‖ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖ Precipitation for the 24 hours ending on the morning when it is measured
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [e], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for December, 1909. District No. 3, Ohio Valley.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
New York.																																	
Allegany	Allegheny							.24	.01	T.	.02		.03	.41	.20	.12	.05	.02	.01	T.	T.	T.	.50	.02		.16	.10	.12	.05	.03			2.09
Bolivar	do							.20	T.		.02	T.		.40	.20	.06	T.		.02			T.	.07	T.		.17	.26	.03	.02	.01	.01	.01	1.48
Franklinville	do							.10	T.	.05	.10	.10	.10	.20	.14	.16	.07	.10	.05	.05	.05	.05	.05	T.	T.	.19	.17	.02	T.	T.	T.	.11	1.86
Jamestown	do																																
Olean‖	do							*	.20		*	.01		.18	.44	.04	.04	T.	.02			*	.02	.18		.06	.40	.04	T.	.01			1.64
Maryland.																																	
Deer Park	Youghiogheny							.54						.55			.20						.20	.20		.80	1.00		.20	.20			3.89
Grantsville	do							.62					.20	2.30									.30			.40	.60	.30	.30	.40	.20		5.62
Oakland	do			.01	.02			.50	T.		.01	.04	.06	.60	.06	.01	.06		.04				.10	.03		.38	.58	.04	.12	.08	.04		2.78
Pennsylvania.																																	
Aleppo	Ohio							.40	T.			.17	T.	.30	.32	.02	.10		T.				.07			.20	.17	.05	.05	.07			1.92
Baldwin	Allegheny							.65	T.	T.	T.		T.	.94	.10	.49	.05		T.	T.		.04		.15		.30	.35	.05	T.	.10	T.	.05	3.27
Beaver Dam	Ohio							.24	.30	T.	T.		.11	.56	.54	.03	T.	T.		T.			.02	T.		.08	.44	.07	.08	.05	.01	T.	2.53
California	Monongahela																																
Clarion	Allegheny																						T.			.30	.16	.07	.03	.18			2.23
Claysville	Ohio				T.			.48		T.		T.	.15	.58	.25	T.	.03						.02	T.	T.	.06	.50	.14	.10	.12	.04	T.	3.34
Confluence	Youghiogheny				T.			T.	.52	T.			.10	.58	1.10	T.	.06	T.	T.	T.			.02	.03	T.	.06	.30	.10	.04	.15	.03	.01	2.81
Davis Island Dam	Ohio					T.		.25	.32	T.	T.	T.	.12	.65	.58	.05	.10	T.	T.	T.	T.	T.	.08	.03		.11	.20	.06	.06	.12			2.24
Derry Station	Allegheny				T.			.30	.04	T.	T.		.13	.92	.15		.04						.30	T.		.35	.08	T.	T.	T.			2.42
Franklin	do							.48	T.	T.	T.		T.	1.16	.05	T.	T.		T.		T.		.30	T.		.03	.04	.02	.09	.50	.08	.08	.12	T.	.03	3.43
Freeport	do							.38	.32		T.		.22	.60	.75	.08	.09	T.					.02	T.	T.	.10	.34	.02	.02	.04	T.		2.02
Greensboro	Monongahela				.02			.04	.36				.16	.28	.48	T.	.14			T.			.04	.05		.21	.30	.12	.07	.06	T.	T.	2.05
Greensburg	Youghiogheny				T.	T.		.39					.08	.44	.21	.03	.05		T.		T.		.04	.03		*	*	.59	.05	.08	.06	.06	2.48
Greenville	Ohio						T.	.25	T.	.02	T.	T.	T.	.67	.40	.03	.06	T.	.04	T.	T.	T.	.14	.03		.06	.06		.16	.19	.06	.03	.06	.02	.03	2.36
Grove City	do						T.	.38		T.	T.		.03	.80	.32	.10	.06		T.		T.		.06	.06		.16	.19	.06	.03	.07	.03	T.	2.33
Herrs Island Dam	Allegheny				T.	T.		.23	.28	T.	T.	T.	.08	.51	.52	.04	.07	T.	T.	T.	T.	T.	.01	.02	T.	.05	.35	.04	.03	.07	.03	T.	2.33
Indiana	do							.65						1.08	.18			.20					.06	T.		.30	.30	.06	.06	*	.20	.05	3.14
Irwin	Monongahela				T.			.40		T.			.10	.55	.15	.02	T.		T.	T.			T.	T.		.33	.02	.02	T.	.11	T.		1.79
Johnstown	Allegheny				T.			.52	.02		.01		.32	1.02	.28	.09	.02	T.	.02				.14	.05		.48	.26	.08	.07	.17	.11	.04	3.70
Lock No. 4	Monongahela							.25	.22	T.	T.		.10	.40	.31	.03	.03	T.		T.	T.		T.	T.		.02	.20	.03	T.	.08	T.	T.	1.67
Lycippus	Allegheny				.01	.01		.34	T.	T.	T.		.15	.93	.16	.05	.08		.04				.05	.11		.26	.28	.17	.14	.26		.01	3.05
Parkers Landing	do						T.	.04	.40	T.	T.	.04	.06	.36	.94	.10	.04	T.	T.	.04	T.	T.	.04	.08		.12	.30	.10	.06	.04	T.	.08	2.84
Pittsburg	Ohio			T.	T.			.49	T.	T.	T.	T.	.12	.91	.05	.02	.08		.01	T.	T.	.02	.03	T.		.33	.06	.02	.09	.07	T.	T.	2.30
Saegerstown	Allegheny							.24		.02			.04	.42	.22		.03				.02	.03	.19	.19	.01	.17	.17	.16	.08	.09	.21	.07	2.36
St. Marys	do							.48			T.			1.40	T.				.04		.08	.08				.65	.08	.08		.04		.04	2.97
Saltsburg	do							.12	.40	T.	.01		.08	.50	.52	.08	.12	.02		T.	T.	T.	.02	.04	T.	.04	.32	.06	.08	.14	.02	.02	2.59
Skidmore	Ohio							.60						.80	.10		.08						.08			.40			.08			2.14
Somerset	Youghiogheny				T.		.06					.10	.10	.50	.25	.25	.16						*	.14		.70	.80	.18	.08	.25	.12		3.69
Springdale	Allegheny							.38	.17				.09	.50	.58	.05	.07						.01	.03		.08	.35	.03	.08	.11			2.53
Uniontown	Monongahela				.03						T.		.50	.37	.30	.25							.15	.03	.05	.10	.30	*	*	.30	.05		2.43
Warren	Allegheny								.36			.10		.40	.10	.20			.20				.10	.40		.40	.10		.08		.10		2.54
West Newton	Youghiogheny				T.	T.		.14	.32				.02	.42	.40	.06	.06	T.	T.	T.			.01	.10		.04	.50	.14	.10	.08	.08		2.47
West Virginia																																	
Arbovale	Great Kanawha																																
Bancroft‖	do			.06			T.	.33	.10					.23	.28		.05		.07				.07			.32	.29	T.	.10	T.	T.		1.90
Beckley	do													.60									.10	.10		.05	1.20			.20			2.25
Ben's Run	Ohio			.11				.40					.11	.97			.19						.07			.41	.40	.40	.10				3.16
Bluefield	Great Kanawha																																
Brandonville‖	Monongahela																																
Buckhannon‖	do			.10				.40	T.		T.	T.		.45	T.	T.	.05						.05			.60	.30	.30	.20	.01			2.46
Cairo	Little Kanawha			.18				.30					.05	.62		.20										.60	.50	.10	.10				2.65
Central Station	Middle Island Creek			.05				.36	T.	T.	T.	T.	T.	.71	.15	T.	.10		T.				T.	T.		.39	.22	.07	.04	.08	T.		2.17
Charleston‖	Great Kanawha				.06			.26						.46	.45		T.						.02				.40	.04					1.69
Creston‖	Little Kanawha			T.				.23	.02					.33	.18		.20	T.	T.	T.			.05	T.		.35	.62	.02	.03	.03	T.		2.06
Cuba	Sand Creek			.04			T.	.33				T.	.02	.60			.10						T.			.50	.20	.05	T.	.10			1.94
Davis‖	Monongahela						.20			.05	T.	.70		.80		.10	.10	.10							.40	.10	.50	.10	.20	.60	.30	.20	4.45
Doane	Big Sandy																																
Elizabeth	Little Kanawha																																
Elkhorn	Big Sandy				.14		.24	.18					42	.14			.05						.02	T.	.80	.63	.10		.10	T.			2.82
Elkins	Monongahela			.02	.01			.26	T.	T.	T.	T.	.03	.62	.01	.06	.04	T.	T.	T.	T.	T.	.22	.01		.39	.31	.04	.09	.09	.02		2.02
Fairmont‖	Monongahela																																
Glenville‖	Little Kanawha			.18				.24	.22					.65	T.	.32	.10	.05					.05	T.		.40	.55	T.	.20	T.			2.96
Grafton	Monongahela							.41	.02	T.	T.	T.	.03	.83	.22		.09						T.			.39	.35	.05	.02	.10	.01		2.52
Green Sulphur Springs	Great Kanawha																																
Hinton‖	do							.32	.08					1.50	.18		.04	.01					.01	.02		.22	.24	.02		.08			2.72
Huntington‖	Ohio			.10				.36	T.					.30	.06		.06						T.				.20	T.	T.	.08	T.		1.16
Lewisburg	Great Kanawha							.79	T.	T.	T.		T.	1.11	T.	T.	T.	T.					T.		T.	.35	T.	T.	T.	.05	.05	T.	2.35
Logan	Guyandotte							.55					T.	.85			T.						.10	T.		.25	.80	T.	T.	.20	.10		2.85
Lost Creek	Monongahela			.07	T.			.35		T.		T.	.09	.80	.08	T.	.03	T.					.02			.39	.40	.08	T.	.05	T.		2.36
Madison	Great Kanawha		.08				.21	.30		T.	T.	T.	.33	.34		.05	T.				T.	.10	.05	T.	.42	.60	.20		.10			2.78
Mannington	Monongahela				.01			.51			T.	.04	.05	.86	.33	.04	.17	T.					.01	.02		.44	.24	.08	.03	.09	.01		2.93
Marlinton	Great Kanawha							.70						2.00	.06											.58							3.34
Morgantown	Monongahela				T.			.39				.10	.04	.48	.18		.20						T.	T.		.31	.10	.20	T.				2.00
Moundsville	Ohio				T.			.57				T.	.20	.45	.06	T.	.07		T.				T.			.28	T.	.12	.03	.07			1.85
New Cumberland	do							.85				T.	.15	.40	.30	.05	.03		T.				T.			.13	.20	T.	T.	.13			2.24
New Martinsville	do							.41				.10	.09	1.00			.16						.02			.32	.10	.10	.10		T.		2.40
Nuttallburg	Great Kanawha							.30					T.	.42									.16			.84	.25			.30			2.27
Parkersburg	Ohio			.04		T.		.27	T.	T.	T.	.01	.21	.51	T.	.07	.10		T.				T.		.01	.52	.13	.10	T.	.02			1.99
Parsons	Monongahela							.44		T.				.60		.40		.20					.10			.15	1.40	.10	.60	.20			4.19
Philippi	do				T.		T.	.43				.03		.75	.15	.04	.08						.08	.04		.42	.52	.04	.03	.08	.02		2.71
Pickens	do			.35				.10		T.			.05	T.	.10	T.	.30	.10					.20	.10		.30	1.20	.30	.30	.40	.20		4.06
Pineville	Guyandotte																																
Point Pleasant‖	Ohio			.06				.46	.08					.34	.06		.12						T.			.38	.30						1.80
Powellton	Great Kanawha							.31				T.		*	.49	T.	T.						.20			.15	1.40	.10	T.	T.			2.65
Princeton	do						.40						1.10	.10		.10							.10		.40	.80	.20		.30	.20			3.70
Robertsburg‖	do			T.			T.	.30	.07				T.	.30	.15		.10	T.				T.	T.	T.	.42	.20	.20	.05	.20			1.99
Rowlesburg‖	Monongahela				T.	.02		T.	.46				.04	.56	1.06	.08	.06	.01					.06	.06	T.	.12	.84	.26	.08	.10	.08		3.89
Ryan	Great Kanawha			.08				.55				T.	T.	.67	.02	T.	.08		T.				.01	T.		.42	.30	.20	.10	.30	.05		2.78
St. Marys‖	Ohio			.08	T.	T.		.21	.07	T.			.04	.70	.20	.02	.27	.02	T.				T.			.25	.30	.05					2.21
Smithfield‖	Fishing Creek				.11								.40	.62	.51	.40									.50	.30	.20	.10	.10	.20	.20		3.64
Spencer‖	Little Kanawha			T.				.16	.45	T.			T.	.45	.25			T.						T.	T.	T.	.50	.15	.05	.03			2.04
Sutton	Great Kanawha		T.					.57	T.				T.	.24		.10						.10				.10	.80	.20	.20	.20			2.51
Terra Alta	Monongahela								1.36	T.			1.30	.22	.08			.02						.42	T.	.85	1.30	.25	.12	.08			6.00
Union	Great Kanawha													.68	.17										.20		.30						1.35
Valley Fork	do			.03										.35	T.		.05								.10	.40	.70	.20					1.83
Webster Springs	do			.15				.25		.02		T.	T.	.30	.22	.10		T.				.20		.10	.15	.30	1.00	.30	.30	.20			3.59
Wellsburg	Ohio				T.			.66				.01	.02	.76		.05	.05		.02				T.	.02		.20	.20	.40	.10	.50			2.99
Weston‖	Monongahela				.14			.10	.30	.04	T.		.10	.20	.60	.14	.20		T.				.10	.04	T.	.20	.50	.30	.16	.06	.08		3.26
Wheeling‖	Ohio							.36	.24	T.	T.	T.	.12	.26	.14	.02	.08	T.		T.	T.		.02	.02		.14	.12	.10	.04	.20	T.	T.	1.86
Williamson‖	Big Sandy			.04				.30	.24					.36	.12		T.									.46	.34	T.		.02			1.88
Ohio																																	
Amesville	Ohio			.02			T.	1.07				T.	.14	.70	.01	T.	.18						T.			.28	.20	.10	.01	.07			2.78
Bangorville	Muskingum			T.		.02	.10	.42				.30	.25	1.30	T.	T.	.05					.15	T.			.50	.30	.10	.20				3.69
Bellefontaine‖	Miami		.13	T.		.21		.26				.21	.24	.46	.02	.02	T.					T.	.05			.32	.22	.34	T.				2.48

TABLE 2.—*Daily precipitation for December, 1909. District No. 3*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Ohio—Cont'd.																																	
Bladensburg	Muskingum					T.	.05	.50		T.		.25	.15	1.05	T.	T.							.05			.75	.10	.10	.05	T.			3.05
Cadiz	Ohio			T.		T.		.09	T.	T.	T.	.11	.03	.91	T.	.03	.11	T.					.06	T.		.33	.19	.12	.06	.13	T.		2.77
California	do																																
Cambridge	Muskingum							.66				.20	.07	1.05		T.	.20						T.			.45	.10	.10	T.	.17			3.00
Camp Dennison	Miami		.05	.03		.35		.42	T.			.20	.21	.76	.01	.03	.01						T.			.50	T.	.01	.03				2.60
Canal Dover	Muskingum			.03				.48	T.			.30	.25	.94	T.		.20		.10				T.			.30	.20	.10					2.90
Canton [‖]	do			T.	T.	.01		.28		T.		.01	.14	.49	.08		.01		T.			.01	.04			.70	T.	.01	.19	.08	T.		2.05
Cardington	Scioto																								*	.07			.15				2.94
Chillicothe [‖]	do	.52				.11		.76				.33	.34	.26		.40							T.	T.		.25	T.	T.	.07	T.			2.40
Cincinnati	Ohio		.04	T.		.17		.54	T.		T.	.14	.49	.45	.01	.08	T.								.16	.33		.03	.04	.10			3.34
Circleville [‖]	Scioto			.65		.05		.80				.45	.50	.29	T.	T.	.10						.02	T.		.32	.06	.20	.05	.10			2.52
Clarington	Ohio				.02		.02	.55		T.	T.	.01	.21	.71	.12	.02	.05	.06															
Clarksville	Miami																																
Columbus (1)	Scioto		T.	T.		.06		.39		T.		.29	.46	.49	.01	.04	T.					.04	.03		.10	.47	T.	.12	.08	T.			2.58
Columbus (2)	do			T.	T.	.11		.47		T.		.18	.25	.82	T.	T.	T.					T.	.05			.32	.38	.05	.05	T.			2.68
Columbus Reservoir	do			T.	T.			.65	T.					1.26									.05				.23		.22			2.41
Coshocton [‖]	Muskingum						.02	.40					.30	.95	.53	.05										.30	.20	.15	.10	.05			3.05
Dayton (1) [‖]	Miami		T.	.10				.55	T.			.30	.36	.66	.02	.03	T.						.02			.52	.01	.06	.04	.02			2.59
Dayton (2) [‖]	do		*	.13		*	.18	.53	T.	*	T.	.05	.52	.71	.28	T.	.01					*	T.	T.	*	.45	.09	.05	.01	.02			3.03
Delaware	Scioto			.03	T	.05		.37	T.	T.	T.	.32	.25	.85	T.	T.	.01	T.	T.			.03	.03		T.	.35	.03	.15	.07	.02	T.		2.56
Demos	Ohio			T.	T.			.79				.15	.07	.82	T.	.05	.10						.02	T.		.20	.11	.14	.10	.04			2.59
Frankfort	Scioto			.05		.12		.80				.15	.27	.67		T.	.05									.50							2.61
Garrettsville	Mahoning						T.	.23					.10	.57	.30	.05	T.		T.	T.	T.	T.	.08	.04		.35	.10	.06	.04	.11	.03	.03	2.09
Granville [‖]	Muskingum			T.		.08	T.	.70		T.		.20	.22	1.05	T.	.03	T.		T.				T.			.60	.20	.30	.30	.10	T.		3.78
Gratiot	do			.60				.55				.40		1.00	T.	.01							.04			.50	.02	.10	.20	.10	T.		3.52
Green	Ohio				.10		T.	.83				T.		.45		.05										.20	.10		.10	.20			2.04
Greenhill	Muskingum			T.		T.		.49	T.	T.		T.	.14	.75	.07	.03	.02	T.	T.		T.	T.	.01	T.	T.	.44	.04	.09	.08	.04	T.	T.	2.20
Greenville [‖]	Miami		T.	.02		.07						.06	.51	.62	T.		T.					T.	T.		T.	.71		.18					3.07
Hillsboro	Scioto		.02	.08		.31		.64				.17	.30	.04	.04	.10	.16		.04				.03	.04		.45	.05	T.	.03	.02			2.51
Ironton	Ohio			.07				.72					.07	.33			.02									.03	.05			.20			1.49
Jacksonburg	Miami		T.	.54				.55	T.		.10		2.00									T.							1.00			4.19
Kenton	Scioto					.28	.15	.27					.35	.70			T.					T.	.10			.40	.20		.10				2.55
Killbuck	Muskingum			T.			.95						.46	1.00					T.				T.			.25	T.	.05					2.71
Lancaster	Scioto			T.		.05		.65					.42	.58	T.	T.	.10						.12			.38		.09	.05	.05			2.49
Lawahe	Ohio		.09	.04		.09		1.10				.03	.20	.55	.02	T.	.05						T.			.22	.03	.04	.04				2.53
McConnelsville	Muskingum			.04		T.		.86			T.	.10	.08	.82	.03	.06	.09			T.			.07			.33	.21	.17	.00	.11			3.06
Marietta	Ohio			.77				.55				.03	.05	.95			.13						T.			.49	.14	.06	T.	.06			3.24
Marion	Scioto					.18		.08				.32	.18	.96	T.	T.	T.					.02	.04			.32	.18	.23	.23	.16			2.90
Milfordton	Muskingum					.01		.70	T.			.36	.37	1.28	T.	T.							.07			.47	.04	.15	.14	.03			3.62
Milligan	do			.23		T.		.87				.03	.05	.76	T.	T.	.05						.02			.40	.07		T.				2.48
Millport	Ohio						T.	.52		T.		T.	.11	.54	.15	.06	.03		.01			T.	T.			.30	.02	.03	.02	.02		T.	1.81
Nellie	Muskingum											.23	.09	1.20		T.										.25	.09	.07	T.	.06			1.99
New Alexandria	Ohio		T.				.70	.70				T.	T.	.96		T.	.20		T.				T.	.20		.30	.40	T.	T.	.30			3.06
New Berlin	Muskingum							.30					.22	.60	T.	T.	.10					T.	.02			.75	.05			.02			2.06
New Richmond	Ohio																																
New Waterford	do			T.				.63					T.		.20	T.	T.						T.			.70	.15	.10	.10	.05			1.93
North Lewisburg	Scioto																																
Orangeville	Mahoning																																
Pataskala	Scioto			.06	.01	.11		.60	T.	T.		.23	.29	.91	T.	T.	.08						.06			.40	.05	.14	.10	.03			3.07
Philo (1)	Muskingum			.02				.66				.12	.04	.64			.08					T.				.20	.12	.08	T.	.06			2.02
Philo (2)	do			T.			T.	.70				.18	.12	.93	T.	.02	.09						.06			.31	.15	.06	.09	.03			2.74
Plattsburg	Miami			T.		.21		.42	T.			.55	.20	.69	T.	T.							.15			.80	T.	.10	.20	.20			3.52
Pomeroy	Ohio			.02				.76				T.	T.	.56			.20						T.			.37	.11	.20	T.	.04			2.26
Portsmouth	do		*	T.		*	.01	1.20				*	.04	.40	.16	*	.06						*	T.	*	.60	.15	.01	T.	.15			2.78
Rittman	Muskingum			.02			.04	.20				T.	.10	1.02	T.	T.						.10	T.			.40	.10	.05	.10	.05			2.18
Shenandoah	do			T.		.04		.27				.10	.18	.67	T.	.04	T.					.04	T.	T.		.32	.07	.04	.06	.02			1.85
Sidney	Miami					.20		.42				.42	.37	.45	T.	T.	T.					.02				.60	.08	.12	.06	.02			2.76
Somerset [‖]	Muskingum			.65	.02		T.	.65	T.		T.		.30	.50	T.	T.	.16		T.				.03			.13	.37	.08	.06	.10			3.05
Springfield	Miami			.07		.24		.51	T.			.64	.29	.69	T.	T.						T.	.01			.57	.04	.09	.09	.01			3.25
Summerfield	Ohio				T.			.79	T.	T.	T.	.19	.06	.80	.07	.08	.12		T.				.04			.60	.14	.10	.04	.16	T.		3.19
Thurman	do			.10		T.		.85				T.	.10	.46			.10									.20	.10	T.	T.				1.91
Urbana	Miami			.20		.23						.21	.40	.25	.02								T.			.51	.09	.03	.12	T.			2.06
Warren	Mahoning					T.		.23		T.	T.		.20	.97	.12	.11	.03	T.				.03	.12	.12		.66	.23	T.	.06	.10	.02	.06	3.06
Waverly [‖]	Scioto		T.	.03	.04	.02	T.	.86	T.			.15	.10	.39	T.	.02	.10						T.			.40	.19	.16	T.	.15			2.61
Waynesville	Miami					.40	.35					.25	.50	.75	T.	T.	.07									.50	T.	.05	.05	T.			2.92
Wooster	Muskingum				.02		.06	.32	T.	T.		.05	.20	.99	.05				.02			.10	T.	.02	.02	.50	T.	.10	.10	T.			2.55
Youngstown [‖]	Mahoning							.22	*	.15			*	.50	.33	.10	*	T.	T.		T.	.05	T.	T.	T.	T.	.50	.04	.02	.02		.02	1.95
Zanesville [‖]	Muskingum			.04	T.		T.	.61	.06	T.	T.	T.	.30	.76	.18	.02	.05	T.		T.			.02	T.		.23	.12	.03	.02	.10			2.56
Virginia.																																	
Big Stone Gap	Tennessee		T.					.77					T.	.90					T.	T.			T.			.75	.15	T.		.15			2.72
Blacksburg	Kanawha							.80					.12	.92			T.						T.	T.		.22	.10			.04			2.20
Burks Garden	Tennessee							1.08					T.	.66			T.		T.				T.			.20	.20		T.				2.14
Elk Knob	do		.06		.02	T.		.72					.08	.95	T.		T.		T.				T.			.66	.20		T.				2.69
Galax	Kanawha			T.				.82						1.74						T.			T.			.20				.02			2.78
Ivanho [‖]	do			.01	T.			.37	.34				*	1.20	.25				.05				T.	T.	T.	.38	.08	.05	.03	T.			2.76
Marion	Tennessee							.67					.30						.10							.20	.30		.10	.20			1.87
Max Meadows	Kanawha							.67					.24	.62												.15					.04		1.72
Mendota [‖]	Tennessee			.04				.82	.20					.88	.01					T.					.08	.40	.26			.16			2.85
Radford [‖]	Kanawha							.42	.38					.86	.52											.20							2.38
Speers Ferry [‖]	Tennessee							.36	.62					.94	.32		T.			T.						.20	.40	.30		.30			3.44
Wytheville	Kanawha			T.				.67					.24	.66			T.		T.				T.	T.		.40	.01		T.	.04			2.02
North Carolina.																																	
Andrews	Tennessee		.17				.06	2.37					.58	1.08					.45						T.	.30				T.			5.01
Asheville	do		.02	.01	.01		.10	1.25					.52	.90					T.	T.			T.		.24	.09	T.		T.	.05			3.19
Banners Elk	do							1.30					.31	1.00			T.				T.			T.		.40	.60		.10	.60			4.31
Brevard	do							2.41					.60	3.20					.18						T.	.72							7.11
Bryson City [‖]	do			.15		.98	.57	.01						.96	.42					.18						.91	.21			.06			4.45
Hendersonville	do	.05			.02			2.25					.50	2.30					.13						T.	.41				.04			5.70
Hot Springs	do	.04						1.05		T.				.37			T.		.15							.40	.10		.30				2.41
Jefferson	do																																
Marshall	do							1.07						.48												.25	.10						1.90
Murphy [‖]	do			.75				1.96						.20						T.	.60					.40				.20			4.11
Rock House	do	.10					T.	3.03					1.47	2.31					.13	T.					.82	T.				.10			8.56
Sunburst	do																																
Waynesville [‖]	do							1.44	.34				.05	.99						.18						.52	.08			.10			3.70
Georgia.																																	
Diamond	Tennessee		.01	.10		.04	*	3.45					.98	.76					.21	.04						1.16			*	.04			6.79
La Fayette	do		.16					2.75					1.20	.90		.05			.14	T.					.63					T.			5.92
Alabama.																																	
Albertville	Tennessee																																4.52
Bridgeport	do			.21			.11	1.59					.34	.90						.27						1.10							6.61
Decatur	do	.10					.26	1.79					.44	.51	.04	.09			T.	2.00	.02					1.32	.04						4.29
Florence	do	.26				.35	.32	.68				T.	.60	.30					.40	.10					1.15	.13							4.30
Guntersville	do	.01	.02				.18	2.04					.20	.66	.02	.02			T.	.20	.02					.01	.90	.02		T.				

TABLE 2.—*Daily precipitation for December, 1909. District No. 3*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Alabama—Cont'd.																																	
Madison	Tennessee					.25	1.30						.32	.55						.45	.10				.70	.90							4.57
Riverton	do		.22			T.	T.	2.04					.48	.66	T.				T.	.25	T.					1.14						4.79
Scottsboro	Tennessee	.14	.01		.14		1.52							.92					.15	.20					.40	.35						3.83
Tuscumbia	do		.23				.29	1.20					.29	.63						.33	.10					1.21						4.28
Tennessee.																																	
Ashwood	Tennessee		.18			.35	.10	.80				T.	.39	.25					.30						.45	.30				T.		3.12
Benton	do		.28			.08		1.50					.24	.90					.30	T.					T.	.70	T.		T.	T.		3.40
Bird's Bridge‖	do							.70	.35					.08					.01	.03						.27	.10	T.		.05		1.59
Bluff City‖	do							1.10	.30					.30					T.							.30	.12					2.12
Byrdstown	Cumberland		.50			.15							.50							T.						.10	.20		.10	.10		1.65
Carthage‖	do		.28	.07			.33	1.64					.09	.79	.03						.01					.45	.15			.08		3.92
Center Point	Tennessee	.20	T.			T.	.78	1.02					.20	.80					.36							.22						3.58
Cedar Hill	Cumberland	T.	1.05	T.			T.	1.50			T.	.30	.65	.45	T.	T.			T.						.30	T.	T.		.05	T.		4.30
Celina‖	do		.33	.05			.16	1.50					.11	.62												.60				.12		3.49
Charleston‖	Tennessee		.02	.15	T.		T.	2.15					.02	1.50	.04					.24						.66	.05			.05		4.89
Chattanooga	do	T.	.24			.07	.84	1.04				T.	1.02	.43					.53	.01					.76	.38	.01		.06	T.		5.39
Clarksville	Cumberland	T.	.24	.01		.07	.07	.74				.54	.70	.28					T.						.20	.13			.05			3.03
Clinton‖	Tennessee			.10			.10	.75						.55	.25					T.						.75	.40			.05		2.95
Dandridge‖	do		.08					.90					.26	.06						.04						.56						1.90
Decatur	do		21	.01		.13	.01	1.45					.24	.91					.15	T.					.02	.70	.02		T.	T.		3.85
Dickson	Cumberland		40			.29		1.79				.34	.85	.27					.05						.35							4.34
Dover	do	.12	.16	T.		.32	T.	.83		T.		.43	.83	.43		T.			T.						T.	.15						3.27
Dunlap	Tennessee		.36	.08		.08		1.56		T.			.34	.84	.11				T.						.13	.58				T.		4.08
Elizabethton‖	do		.01					.70					.33			T.			.02							.20	.20		.02			1.48
Erasmus	Cumberland		.61	.02		.19	T.	.84					.36	.62	T.	T.			.08	T.		T.			.18	.82	.06		T.	.02		3.80
Florence	do		.12			.33		.95				T.	.37	.43		T.			.20			T.			.05	.07			T.	T.		2.52
Franklin	do	.09				.75	T.	1.55				T.	.15	.80		T.			.05			T.			.50	.07			T.			3.96
Hall's Hill‖	do			.13			.30	.93					.15	.50	T.					.10						.60	.05	T.		T.		2.76
Harriman	Tennessee			.25	T.			.90						1.06					T.						.80							3.01
Hohenwald	do					.42	.12	1.34			.02	.08	.12	.36					.30						.60	.30						3.66
Iron City	do		.35			.40	.20	.57				T.	.55	T.					.30	T.					.53	.07						2.97
Johnsonville	do	.06	.26			.18	.01	.79				.38	.86	.41					.02						.34	.14			T.			3.45
Jonesboro	do																																
Kingston‖	do		.08	.10			.05	.80					.02	.84	.10					.08						.70	T.					2.77
Knoxville	do		.05			T.	.15	.82					.40	.20		T.			.06						.39	.42	T.		T.			2.49
Lebanon	Cumberland		.25			.41		1.40					.33	.55		T.			.05						T.	T.			T.	T.		2.99
Lewisburg	Tennessee		.12			.44	.23	1.08				.07	.23	.38					.15	T.					.54	.20				T.		3.44
Loudon‖	do			.10			.05	.96	.05					.70	T.					.30					.55	.10			T.	T.		2.81
Lynnville	do		.19			.11	.14	1.35				.10	.55	.15	T.				.13	T.					T.	T.						2.72
McGhee‖	do			.20				1.35						.87	.23					.16						.70	.02					3.53
McMinnville	Cumberland		.08			.41		1.30	T.			T.	.07	.50					.23	T.		T.			.16	.71	.07		T.	.05	.01	3.59
Maryville	Tennessee		10	.01		.04		1.00					.12	.62					.16						.07	.72	T.	T.				2.84
Mountain City	do			.03				.90									T.		T.							.43	.10		.20			1.66
Nashville	Cumberland	.06	.21			.31	.49	.75			T.	.05	.39	.26		T.			.03				T.		.31	.04	T.		T.	T.		2.90
Newport‖	Tennessee							.75						T.					.10							.50						1.35
New River‖	Cumberland		.32	.48				.92					.38	.25												44						2.79
Palmetto	Tennessee		.01			.33	.25	.80				.06	.25	.31					.25	T.					.30	T.			T.	T.		2.56
Pinewood	do		.48			.30		1.67				.18	1.00	.32	.03	T.									.35	T.				T.		4.33
Pope	do						.20	2.30					1.00			T.			.40						.90							4.80
Rogersville‖	do			T.		T.	.60	.24						.80	.12		T.			T.			T.			.48	.18	T.		T.		2.42
Rugby	Cumberland		.79	.10		.05		1.00						.36			T.		.20				T.		T.	1.25				.30		3.85
Savannah	Tennessee	.20				.42	1.50					.90	.10	.05					.20						1.20							4.57
Sevierville	do		.09					.72					.12	.35					.09						T.	.49	.03		.01			1.90
Sewanee	do							1.83						2.43					.20							.20						4.66
Sparta	Cumberland		.10		T.	T.		1.30					.25	.40					.05							.15				.02		2.27
Springdale	Tennessee		T.	T.				.72					.03	.36					T.	T.	T.				.10	.10	1.20					2.51
Springville	do	.20	.24	.02		.38		.85	T.		T.	.41	1.10	.41		T.			T.						1.31	.13			T.			4.92
Tazewell‖	do						T.	.75						.30	.20					T.				T.		.05	.75	T.		.15		2.20
Tellico Plains	do																																
Tullahoma	do		T.			.27	T.	1.53					.29	.37					.17						.22	.56				T.	T.	3.41
Walling‖	Cumberland		.10	.05			.25	1.50					.04	.50	.10					.09						.60	.14			T.		3.37
Worsham‖	do		.57			.62	1.30						.80	.49			T.		.25	T.					.81	.18			.05			4.38
Waynesboro	Tennessee		.30			.48		1.30				.17	.37	.37					.13						.50	T.				T.		4.23
Wildersville	do					.40		.88				.35	.90	.40											.60	.50						3.56
Yukon	do					.46	.04	1.35				T.	.35	.50																			3.80
Kentucky.																																	
Alpha	Cumberland	1.01				.25		1.15					.15	.75		T.							T.		.66	T.	.30		T.	.50		4.77
Anchorage	Ohio		.44	.01		.24		.53				.54	.34	.34		.02									.02	.30	T.		T.			2.78
Bardstown‖	Green		.39	.19			.25	.83				.05	.35	.97	.08											.57	.10					3.78
Beattyville‖	Kentucky			.18	T.		.12	.84				T.	.18	.22	.14		T.					T.	T.		.38	.22	.14		.12			2.54
Beaverdam‖	Green		.26	T.			.06	.50	T.			.12	*	1.25	.05		.03								.30				.20			2.77
Berea	Kentucky					.11						.01	.16	.31			.01					T.			.15	.10	.02	T.	.30			1.17
Bowling Green‖	Green		1.00	T.	.05	.01	.10	.88				.04	.44	.60	.02		.02					T.			.45				.12			3.73
Burnside ‖	Cumberland		.16	.98			.08	1.20					.20	.48	.08		T.					T.			.58	.10	T.		.10			3.94
Cadiz	do	.31		.21		.38		.60				.58	.67	.40	.52	.04									.24							3.95
Calhoun	Green		.40			.20		.28				.73	.69	.49		T.							T.		.01	.48	T.		.02	T.		3.30
Catlettsburg‖	Big Sandy			.16			T.	.44	.06				.08	.22	.18		.10			.04	T.				.36	.28	T.			.12	T.	2.04
Earlington‖	Green		.20	.01			.25	.25	T.			.10	.88	.45	T.		T.								.47					.06	T.	2.76
Edmonton	do		.81	.01		.45		1.15	T.				.41	.70		T.	T.						T.		T.	.59	.11		.05			4.28
Eubank‖	Cumberland		.09	.60			.12	1.20	T.			.03	.18	.49	.24		.01						T.		.61	.30	T.		.10	T.		3.97
Falmouth‖	Licking			.10			.65	.30				.05	.22	.75	.10	.16	.05			.05	T.				.10	.05	.07		.10			2.65
Farmers	do		T.	.04		.05		.97	T.			T.	.19	.30			.03						T.		.56		T.		.11			2.25
Frankfort‖	Kentucky		.25	.11			.22	.71	T.			.07	.45	1.02	.02	T.	.02						T.		.40	.13	T.		.06			3.46
Franklin	Green		.62			.31		1.52				.19	.62	.43		T.			T.				T.		.09	T.			.04	T.		3.82
Greensburg‖	do		.47	.58	.03			1.40				.05		.85	.10		T.								T.	.56	.05			.10		4.19
Highbridge‖	Kentucky		.09	.36			.20	.96				.02	.15	.40	.24		.01									.56	.15	T.		.06		3.20
Hopkinsville ‖	Cumberland		.40			.25		1.40				.45	.90	T.											.10				.50			4.00
Irvington	Ohio		.77			.23		.47				.70	.30	.37		T.							T.		.10	.05			.10			3.09
Leitchfield	Green		.96			.27		.63				.40	.56	.33		.02									*	.55			.08			3.80
Lexington	Kentucky		.20			.15	T.	.78	T.		T.	.12	.18	.41	T.	.03			T.				T.		.24	.46	T.	T.	.20	T.		2.77
Loretto	Salt		.70			.25						.95	.41	.55	T.	T.										.49			.05			3.40
Louisville	Ohio		.37	T.		.23	.17	.32			.01	.64	.40	.23	T.	.04							T.		.16	.19	.01	T.	.04	T.		2.81
Marion	do	T.				.79		.32				*	*	2.15											*	.34			.06			3.66
Maysville‖	do			.08			.12	1.14				T.	.07	.40	.15	.01	.08			.01	T.				.35	.10	T.		.02	.09		2.62
Middlesboro	Cumberland		.11			.08		.88						.60						.10						.75			.10			2.62
Mt. Sterling‖	Licking			.19			.15	1.65	T.	T.		T.	.16	.41	.30		T.					T.			.56	.15			.14			3.71
Owensboro‖	Ohio		.40				.27	.41	T.			.35	.68	.74	T.		T.						T.		.20					.06		3.11
Owenton	Kentucky		.30									*	*	2.50												.20	.10					3.10
Paducah‖	Ohio			.10			T.	.46	.10					.32	.10		.01									.16	.50	.06	T.	.08	.02		1.91
Pikeville‖	Big Sandy																						T.	T.		.60	.09		T.	.10	T.		3.54
Richmond‖	Kentucky		T.		.42		.10	1.47				.03	.19	.40	.11	T.	.03									.45	.25			.05			3.69
St. John‖	Salt		.72		T.		.30	.73				.02	.30	.83	.03		.01									.20							3.11
Scott	Licking		.04	.03	T.	.29		.53				.35	.30	.96	T.	.09							T.		T.	.47	.04	T.	.01	T.			2.97
Shelby City‖	Kentucky		.66	T.		.11		.95				.05	.27	.43		T.	T.									.37	.09			.04			

TABLE 2.—*Daily precipitation for December, 1909. District No. 3*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Kentucky—Cont'd.																																	
Shelbyville‖	Salt		.30	.10			.23	.73	T.			.19	.24	.90	.06	.03	.03									.42	.03	.03	.02				3.31
Taylorsville	do		.32			.22		.72				.39	.28	.70		.04									.36	.05			.10				3.09
Williamsburg‖	Cumberland		.12	.35			.04	.86						11	.30											.11	.08			.08			2.05
Williamstown‖	Licking		.10			.26		.67				.01	.24	.79	.27		.06						.01	T.		.28	.08		T.	.03			2.82
Indiana.																																	
Anderson	West Fork, White		.01		T.	.09	T.	.36			T.	.54	.63	.35	.02	T.	T.	T.				T.	T.		T.	.50	.02	.01	.01	T.			2.54
Bloomington‖	do		.56	.03			.20	.70	T.			.32	.95	1.02	.05	.03	.01						T.	T.		38	.25		T.	.05			4.75
Bluffton	Wabash			.05			.08						.80	.56	.02											70	.10		.10				2.41
Butlerville	Muscatatuck		.18			.27		.54				.78	.42	.72	.06	.13							.02			65		T.	T.				3.77
Cambridge City‖	Whitewater			.02		T.	.13	.23	.09			.18	.60	.80	.25	T.	.02	T.	T.	T.			T.			50	.12	.06	T.				3.00
Columbus‖	East Fork, White		.11	.02			.10	.50				.36	.55	.79	.02		.01									25	.10			.10			2.91
Connersville	Whitewater		.03	T.	T.	.07		.42	T.	T.		.61	.71	.45	.02	T.	T.					T.	T.		T.	.50	T.	T.					2.81
Delphi‖	Wabash		T.	.02		.02	.30	.31	.17		*	.19	.38	.64	.08	T.	.02		T.	T.		T.	T.		T.	.58	.16	.10	.02	.05			3.04
Eminence	West Fork, White	.20			.10	.20		.15				.25	.10	.40	.05	.05			T.	T.						.25	.07	.35		.12			2.29
Evansville	Ohio	.11	.11			.37	.15	.17			T.	1.13	.64	.38	T.	T.							T.			.23	.16	T.	T.	.03	T.		3.48
Farmersburg	Wabash		.03		.33	.33		.14				.45	.41	.52	T.											.14	.30			.06			2.71
Farmland‖	West Fork, White			.03			.20	.13				.30	.18	.80	.18		.03										.30	.15	.10		.08			2.48
Greenfield	East Fork, White		T.			T.		.73				.54	.71	.42		T.						T.				T.	.55	.05		.10			3.10
Greensburg	do		T.			.17		.43				.48	.51	.65	T.	.09										T.	.64	.11					3.08
Heltonville	do																																4.62
Huntingburg	Patoka		.59			.24		.33				1.54	.64	.75												53							2.93
Huntington	Wabash			T.		T.		.45				.25	.85	.38	.03	T.	.03					.03	.03		.15	.45	T.	.16	.08	.04			2.90
Indianapolis	West Fork, White		.13	T.	.02	.14		.46			T.	.56	.70	.20	.01	T.						T.	T.		.15	.52		T.	.01	T.			3.05
Jeffersonville	Ohio		.38	T.	T.	.27		.54			T.	.70	.34	.41	T.	.02						T.			.03	.33	.02	T.	.01				3.16
Judyville	Wabash		.65	.02	T.	.25	T.	.68				T.	.05	T.	T.	.01						T.			.05	1.45			T.	T.	T.		2.53
Kokomo	do		.16			.23		.41			T.	.26	.67	.35	T.	T.	T.			T.		T.	T.	T.	T.	.45	T.	T.	T.				3.06
Lafayette‖	do		.07	T.		.03	.39	.18	.10			.07	.33	.58	.05	T.	.04				T.		T.	T.	T.	.58	.54	.05	.03	.02			2.76
Logansport‖	do					.06	.25	.27				.17	.47	.73	T.		T.									.49	.17	.15	T.				3.75
Madison	Ohio		.28	.02		.18		.62				.85	.38	.72	.03		.03									.57	.05		T.	.02			3.53
Marengo	Big Blue		.80			.21		.40				.40	.72	.70	T.	.05							T.		.05	.20			T.				3.53
Marion	Mississinewa			.11		.17		.40				.32	.79	.37	T.	T.	.06	T.					T.	T.		.10	.75	.10	.30	.06		T.		2.60
Markle	Wabash			T.		.20		.20				.10	.50	.40	T.	T.							T.	T.			.70	T.	.30	T.	.20			3.17
Mauzy	East Fork, White		.02	T.		.10		.35				.48	.54	.50	T.	.10	T.				T.	T.	T.	.03		T.	.70	.10	.10	.15	T.			2.83
Moores Hill	Ohio		.07	.02		.12	T.	.59				.25	.33	.64	.02	.04	.03						.02			.55		.05	.10				3.12
Mt. Vernon‖	do		.06	T.		.06	.40	.24				.74	1.08	.42	.10										*	.02							3.65
Paoli	East Fork, White		.67			.23		.35				1.30	.32	.33		T.							T.		T.	.44		*	.01				3.64
Princeton	Patoka					.52		.10				1.68	.59	.20		.10										15	.30						2.36
Richmond	Whitewater		.06			.15		.50			.10	.41	.31	.33	T.							T.				17	.27	.01	.03	.02			3.34
Rochester	Tippecanoe					.23	.02	.60				T.	.62	.52	T.	T.	T.	T.						T.		T.	.01	1.30	.02		.02			2.44
Rockville	Wabash		.34	T.	.06	.41		.18			T.	.32	.28	.18	.21	T.						T.	T.		.11	.35		T.					3.41
Rome	Ohio		.51	.02		.11		.50				.82	.38	.50	T.		.03								*	*	*	*	*	.54			2.38
Salamonia	Salamonia			.02		.15	.01	.36				.24	.55	.37	T.		T.					T.	.02			.49	.06	.09	.02	T.			4.18
Salem	Big Blue			.54	.02	.15		.52				1.25	.50	.54	.08	T.	T.						T.		T.	.40	.12		.06				3.32
Scottsburg	Muscatatuck		.36			.28		.34				1.06	.23	.50	T.	.15	T.						T.			.05	.20	.10		.05			3.60
Seymour	East Fork, White		.21			.14		.46	T.			1.04	.32	.47	.02	.02							T.		T.	.38	.48		.06				2.43
Shelbyville	do		.07	T.	T.	.10		.50				.41	.51	.24	.05	.05	T.					T.	T.		T.	.33	.09	T.	.08	T.			3.10
Terre Haute	Wabash		.30		.20	.30		.10				.40	.56	.56	.12								T.			.32	.24		T.	T.			2.96
Veedersburg	do		.48			.30		.30				T.	.43	.55	T.	T.						T.			.10	.60		.20				2.35
Vevay	Ohio		T.	.10		.25		.25			.05	.05	.40	.50	T.	.15										.40		.20					4.95
Vincennes‖	Wabash		.35	T.		T.	.80	.45				.50	1.25	1.00	.10	T.	T.						T.	T.		.50	T.						3.90
Washington‖	West Fork, White		.21			.05	.30	.60				.48	1.06	.90	.05								T.			.25							2.97
Whitestown	do		.20			.53		.30				.33	.48	.45	.08	T.						T.	T.		T.	.55	T.	T.	.05				2.62
Winona Lake	Tippecanoe				.14	.20		.31				.07	.54	.57	T.	T.	.03		T.			T.	.02		.02	.58		.02	.07	.05			4.15
Worthington	West Fork, White		.32	T.		T.	.45	.34	T.			.54	.66	.85	.09	.03	.02						T.			.39	.16			.10			3.28
Illinois.																																	
Albion	Wabash	.10				.30		.45			T.	1.23	.80	.05	T.	T.										.20	.10		.05				2.63
Charleston	do	.05			.04	.34	.02	.36			.22	.36	.27	.22	.01	T.							T.			.37	.37		T.				3.86
Equality	Ohio	.02	.06		T.	.49		.57			T.	1.20	.82			T.							T.			.30	.30		.10				2.34
Fairfield	Wabash					.38		.51				.01	.51	.61													.32						2.45
Flora	do	.07	T.	T.	.05	.38	.28					.94	.45	T.	T.	T.							T.			.10	.18						5.23
Goleonda	Ohio	.74	T.	.11	T.	.71		.52				1.01	.91	.41	T.											.22	.34		.26				3.61
Hoopeston	Wabash		.36		.02	.48		.50				.04	.43	.63	.01	.02	.01						T.	.16	.84	T.	T.		.01	.05	.05		3.58
McLeansboro	do	T.		.09		.32		.41				1.46	.32	.50		T.										.13	.14		.21				3.03
Martinsville	do		.43		.10	1.00	T.	.30			T.	.25	.25	.10		T.							T.			.20	.30		T.	.10			4.88
Mt. Carmel‖	do		.36	.02		.30	.26	.40	.02			.64	.96	.76	.16	T.	.10						T.	T.		.60	.20			.10			3.06
New Burnside	Ohio				.35	.44						1.60		.55												.12							3.28
Olney	Wabash	.04			T.		.67				.10	1.13	.47	.40	T.								T.			.07	.39		T.	.01			3.61
Palestine	do				T.	.42	T.	.76				.75	.56	.75	T.								T.			.37		T.	T.				2.92
Paris‖	do				T.	.35	.12	.50					.40	.65			T.						.20			.60	.10						2.37
Philo	do				.20	.38		.45				.10	.16	.42	T.							T.				.52	.14						2.36
Rantoul	do			.14		T.	.36		.24			T.	.40	.60	T.	T.										.12	.50		T.				2.90
Robinson	do			.50			.35		.30		.35	.35	.65	T.													.30	.10	T.	T.				3.10
Sumner‖	do			.37			.37		.20			1.23	.47	.04	T.											.01	.40		.01				2.74
Tuscola‖	do			.03			.01	.27	.80			.06	.11	.61	T.	T.	T.						T.			T.	.83	.02		T.				2.55
Urbana	do	T.	.04		.09	.25		.65			T.	.03	.30	.44		T.							T.			.62	.13			T.	T.			

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 3, Ohio Valley.*

Date.	Pennsylvania.				West Virginia.																Ohio.							
	Greenville.		Pittsburg.		Charleston.		Elkhorn.		Elkins.		Glenville.		Huntington.§§		Morgantown.		Parkersburg.		Wheeling.§§		Canton.		Cincinnati.		Columbus.		Dayton.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	55	19	55	32	60	30	61	28	59	20	63	20	56	24	58	25	61	28	54	22	52	27	61	34	57	33	58	26
2	50	20	51	33	56	31	64	31	57	22	56	21	49	28	60	25	54	31	48	22	50	28	49	43	53	39	56	34
3	51	17	46	27	57	42	60	30	43	24	50	29	54	40	48	30	51	36	45	23	45	27	51	45	50	43	52	44
4	40	23	50	38	65	43	62	34	59	36	62	40	62	36	48	42	60	38	57	31	50	32	61	44	59	41	62	44
5	61	30	65	40	71	42	70	39	71	30	75	31	73	29	69	31	71	38	68	35	65	37	65	30	67	28	67	35
6	60	21	50	28	70	30	64	28	54	24	68	31	45	29	64	30	44	30	45	28	41	23	40	25	37	23	38	22
7	48	20	54	30	59	35	58	35	55	23	57	24	49	22	54	27	57	31	53	26	45	24	43	19	45	19	41	25
8	30	9	30	11	39	26	44	23	30	18	38	25	30	10	37	20	33	14	26	21	24	8	23	9	19	4	25	8
9	16	7	15	6	34	12	39	14	18	10	28	9	23	10	21	6	20	8	18	5	13	4	21	6	15	4	14	4
10	25	14	22	12	30	15	38	10	24	12	28	14	30	14	22	13	26	12	30	9	23	4	27	9	25	6	23	6
11	29	23	34	16	40	25	55	20	33	15	36	17	40	29	29	15	31	22	32	12	27	18	33	24	30	22	31	20
12	34	27	41	30	55	29	60	34	48	32	55	33	53	37	44	25	50	31	43	20	37	25	45	33	42	30	40	31
13	41	32	54	32	59	36	56	40	52	32	58	38	56	33	44	35	54	35	46	32	42	31	51	32	48	31	49	30
14	41	30	34	30	45	34	40	28	38	29	48	33	41	32	46	30	38	33	35	32	32	28	37	32	34	30	33	30
15	32	25	33	26	44	34	45	30	38	27	39	32	34	25	34	29	38	29	31	31	31	25	33	26	32	25	33	26
16	26	11	26	21	35	25	35	20	27	12	33	24	36	22	35	21	32	22	30	24	25	20	35	22	29	20	30	19
17	32	14	36	19	42	25	43	23	38	12	44	12	42	16	43	20	40	21	41	17	31	17	35	13	32	15	33	18
18	21	12	19	11	42	17	40	18	25	12	38	15	22	12	39	12	21	12	19	14	17	8	18	7	16	8	19	6
19	21	8	17	8	23	15	31	15	19	9	23	8	22	9	18	8	21	12	21	9	17	5	20	9	19	7	20	7
20	22	1	22	9	22	12	28	12	25	11	27	7	28	9	23	9	26	10	26	9	22	5	26	12	22	8	24	8
21	25	5	28	17	36	12	35	21	30	16	35	9	36	18	29	15	34	18	34	10	26	13	34	19	30	15	32	16
22	29	13	28	15	36	19	29	15	28	15	32	17	25	19	28	14	29	16	28	16	24	9	24	16	25	13	23	13
23	30	24	28	23	32	21	22	15	22	17	27	20	33	12	24	17	28	20	29	17	27	18	34	18	32	18	32	19
24	27	15	31	17	39	12	38	22	35	14	37	7	39	12	32	15	35	12	34	10	28	10	33	17	32	12	31	12
25	30	16	36	25	39	28	39	26	35	25	39	24	40	27	37	25	39	30	36	10	33	23	35	28	34	26	35	26
26	32	22	29	19	34	27	26	12	25	20	35	27	30	20	33	24	30	25	34	28	28	18	30	17	29	16	28	16
27	28	14	26	18	35	26	33	17	26	18	28	22	33	20	26	19	29	21	30	22	24	13	29	16	25	15	25	16
28	22	15	22	16	33	21	35	18	22	15	29	19	30	12	23	17	26	18	23	17	21	12	30	14	24	11	26	14
29	18	4	21	4	30	11	25	6	20	6	23	9	17	10	20	8	26	12	19	10	18	− 2	16	3	14	6	19	7
30	17	4	11	− 1	17	5	11	0	9	− 2	15	5	23	0	14	1	14	1	28	− 2	11	− 7	20	− 3	16	− 4	13	− 5
31	25	10	30	9	41	13	37	6	36	0	42	1	40	2	31	4	37	14	37	6	28	8	39	17	32	16	35	13
Mns	32.8	16.3	33.7	20.0	42.6	24.3	42.7	21.6	35.2	17.9	40.9	20.1	38.5	19.9	36.2	19.7	37.3	21.9	35.5	18.3	30.9	16.5	35.4	20.5	33.0	18.7	33.8	19.0

Date.	Ohio.				Virginia.				Asheville, N. C.		Decatur, Ala.§§		Tennessee.														Beattyville, Ky §§	
	Marion.		Waverly.		Big Stone Gap.		Wytheville.						Chattanooga.		Jonesboro.		Knoxville.		Nashville.		Palmetto.		Sparta.		Waynesboro.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	61	27	61	20	59	27	55	21	58	27	.....	43	59	42	.....	.....	58	34	64	39	64	41	62	32	61	45	70	21
2	55	32	51	24	47	28	55	25	52	27	.....	45	50	42	.....	.....	49	36	61	46	57	48	53	45	63	50	46	23
3	47	39	54	42	61	39	59	37	61	40	.....	47	61	45	.....	.....	59	42	54	44	58	42	64	46	66	37	63	31
4	59	32	66	36	60	35	59	36	66	36	.....	39	60	41	.....	.....	60	37	72	42	72	35	68	40	71	37	72	35
5	67	45	74	33	68	34	67	31	64	32	.....	55	60	41	.....	.....	63	36	60	38	63	45	72	34	61	43	70	30
6	54	22	58	22	60	32	56	36	61	40	.....	37	51	35	.....	.....	55	35	52	29	49	28	60	26	61	30	54	21
7	42	27	46	27	57	38	53	30	62	29	44	34	62	30	.....	.....	56	32	53	28	60	31	58	30	53	29	50	23
8	29	5	32	13	58	26	34	26	35	24	37	26	41	27	.....	.....	37	26	32	17	34	22	40	25	32	22	35	19
9	20	3	24	6	33	15	27	15	28	27	32	19	30	19	.....	.....	27	18	30	10	29	13	35	12	28	12	29	6
10	23	6	30	8	36	12	31	12	43	13	42	18	40	19	.....	.....	37	16	43	16	45	16	42	13	45	15	42	6
11	25	20	32	24	46	24	45	23	53	23	55	20	52	30	.....	.....	50	30	55	36	52	32	53	25	48	39	43	7
12	40	25	41	30	55	36	40	31	41	34	59	40	54	44	.....	.....	52	40	57	46	55	39	56	46	53	43	47	30
13	46	33	50	34	52	39	40	31	55	29	50	34	54	32	.....	.....	51	32	57	31	41	30	56	32	54	30	50	37
14	33	28	36	31	43	32	40	28	49	27	56	26	54	30	.....	.....	47	31	55	30	54	29	53	30	54	27	49	30
15	36	24	38	29	41	30	40	30	48	27	47	28	47	33	.....	.....	44	31	37	30	41	30	43	31	45	30	34	29
16	30	18	34	22	37	25	33	23	39	25	48	20	44	27	.....	.....	40	27	43	25	44	20	44	30	44	18	44	22
17	32	19	39	19	42	18	40	22	44	21	47	23	50	33	.....	.....	48	30	43	27	47	29	46	21	44	32	45	19
18	24	4	27	10	38	25	33	22	33	26	46	25	36	23	.....	.....	37	22	27	17	29	17	39	19	34	18	19	12
19	20	3	23	4	28	20	27	21	30	24	28	18	30	23	.....	.....	28	21	28	18	22	15	32	17	28	15	23	10
20	24	6	30	6	33	18	31	17	34	21	26	18	35	23	.....	.....	34	20	36	16	31	12	30	15	30	10	32	5
21	25	13	37	11	35	12	33	15	38	16	40	13	42	19	.....	.....	38	18	42	18	39	7	38	10	40	8	41	4
22	23	11	32	15	30	17	25	16	29	16	38	19	38	21	.....	.....	32	20	30	22	32	16	38	12	34	14	25	5
23	32	20	37	20	27	18	26	17	34	14	40	22	36	19	.....	.....	31	18	37	19	36	13	38	11	38	15	39	8
24	27	11	35	9	36	16	42	14	42	18	40	23	36	29	.....	.....	33	22	39	26	31	23	40	20	37	29	38	10
25	33	26	36	29	35	25	37	22	42	23	38	32	40	29	.....	.....	38	26	40	25	39	27	38	20	42	30	37	19
26	28	17	32	20	33	20	25	18	26	20	37	23	32	24	.....	.....	30	20	32	19	34	21	28	18	36	26	27	21
27	25	13	32	19	33	18	31	18	45	16	50	23	47	23	.....	.....	41	20	38	27	44	25	40	10	43	22	33	5
28	23	11	26	14	32	14	26	19	30	20	45	23	41	27	.....	.....	36	24	44	20	42	24	38	24	43	19	34	19
29	22	− 1	25	8	14	11	23	4	28	5	25	12	31	12	.....	.....	30	10	20	7	33	12	36	8	35	13	12	6
30	12	− 8	14	− 7	15	− 5	13	1	18	3	23	10	29	9	.....	.....	23	8	30	6	30	5	24	2	33	5	22	− 11
31	33	8	43	12	32	4	33	12	41	7	51	18	43	25	.....	.....	43	18	48	28	43	24	46	23	46	27	46	− 5
Mns	33.9	17.4	38.5	19.0	40.6	22.9	38.0	21.7	49.2	22.5	41.8	26.9	44.7	28.3	.....	.....	42.2	25.8	43.8	25.9	43.5	24.9	45.5	23.5	45.2	25.5	41.0	16.0

TABLE 3.—*Maximum and minimum temperature at selected stations, December, 1909. District No. 3*—Continued.

Date.	Kentucky.														Indiana.												Illinois.	
	Bowling Green.		Earlington.		Greensburg.		Lexington.		Louisville.		Maysville.		Williamsburg.		Butlerville.		Evansville.		Indianapolis.		Kokomo.		Rockville.		Worthington.		Philo, Ill.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	65	33	64	31	65	22	61	38	62	37	66	23	63	46	61	37	63	41	58	36	57	26	60	32	55	27	57	32
2	57	45	63	45	53	27	49	42	53	44	46	24	47	28	55	42	59	47	48	42	47	39	60	44	61	28	52	46
3	57	42	59	45	55	37	55	43	52	45	53	27	72	35	54	45	59	48	48	45	48	43	48	43	50	46	54	46
4	72	39	72	43	72	35	65	40	67	44	66	39	75	36	62	45	69	48	60	46	60	45	60	46	51	46	60	44
5	62	45	57	53	59	35	61	30	59	30	72	34	63	36	58	35	61	30	56	25	55	26	57	24	61	47	56	22
6	53	24	45	23	52	22	42	24	42	26	50	20	68	24	44	20	41	25	35	21	33	20	35	20	58	22	33	20
7	39	35	33	25	43	22	51	23	40	17	51	20	55	27	40	25	35	16	33	7	29	11	32	7	38	23	31	2
8	28	12	24	12	28	13	23	8	23	9	27	13	37	23	25	6	18	9	9	1	12	− 2	7	− 2	29	5	5	− 7
9	26	6	25	7	25	5	19	4	23	7	25	5	21	10	19	3	20	5	11	− 1	9	− 4	10	− 5	12	1	8	− 9
10	40	12	40	8	37	5	32	11	33	13	31	5	41	11	27	7	33	14	24	4	21	− 1	22	0	15	1	21	− 8
11	47	22	49	17	46	10	41	27	39	30	37	13	55	16	34	22	40	33	34	24	30	17	34	21	34	12	34	21
12	55	38	51	32	55	23	49	40	49	38	49	27	55	36	43	29	48	36	43	34	39	29	43	33	38	34	36	33
13	36	33	32	30	40	36	50	29	51	32	51	35	53	48	50	28	36	29	45	28	40	29	42	29	44	34	33	28
14	50	26	45	30	49	27	41	28	41	32	40	30	53	31	32	28	38	30	32	28	31	27	42	27	34	31	31	26
15	34	30	33	20	32	28	32	22	33	26	33	29	34	32	33	29	30	27	29	21	30	23	30	23	33	29	29	22
16	42	21	42	21	40	21	34	11	38	24	36	21	45	25	38	19	39	23	33	16	35	10	33	12	30	20	33	7
17	40	27	29	25	41	22	35	16	38	15	38	22	46	21	34	17	36	16	32	7	33	10	33	8	34	16	32	3
18	18	12	17	13	18	12	16	9	18	10	19	9	23	18	17	5	17	10	15	3	13	1	18	2	21	6	11	− 1
19	24	13	23	13	22	10	18	9	20	10	23	7	23	16	20	5	19	13	17	4	14	1	16	1	17	5	13	− 6
20	33	9	32	8	31	6	25	10	30	14	30	6	33	13	26	7	32	15	23	6	31	4	24	3	20	6	22	− 4
21	40	16	37	10	29	5	34	15	35	20	38	6	43	10	34	15	34	19	25	14	18	14	22	3	27	6	18	10
22	25	19	24	17	25	7	23	14	27	19	25	14	33	10	30	14	27	19	24	14	23	13	23	14	31	15	24	14
23	37	9	35	11	35	6	32	12	34	16	37	15	32	9	34	11	33	23	23	14	23	10	22	13	24	16	21	9
24	37	20	36	13	38	6	34	20	36	22	36	10	45	10	32	13	34	29	29	15	30	11	29	14	27	15	28	8
25	35	25	31	30	27	6	36	25	36	25	37	10	42	23	30	26	34	20	31	24	31	24	31	25	33	26	29	20
26	29	16	32	12	26	6	26	15	25	18	26	23	41	21	27	13	26	9	24	6	33	8	26	0	34	9	20	− 2
27	35	19	30	14	35	9	28	17	31	20	31	17	40	10	27	14	30	21	22	12	28	7	22	9	26	8	21	6
28	35	20	33	20	35	19	29	13	32	10	31	15	35	17	26	14	31	9	24	8	33	6	23	7	26	15	22	4
29	13	3	13	3	12	5	14	2	15	4	16	6	12	8	17	4	12	2	10	− 5	12	0	9	− 2	29	1	6	− 7
30	28	3	31	− 4	22	− 7	17	− 4	21	1	21	− 4	27	6	15	− 9	23	1	13	− 8	11	−12	13	−13	10	− 9	12	−14
31	48	6	50	4	35	− 6	39	15	43	21	42	− 3	42	7	38	12	42	23	37	13	33	7	37	11	19	− 1	35	8
Mns	40.0	21.9	38.3	20.3	38.1	15.3	35.8	19.9	37.0	21.9	38.2	16.7	43.7	21.4	34.9	18.7	36.1	22.3	30.5	16.3	30.4	14.3	31.1	14.5	32.9	17.5	28.6	12.0

Climatological Data for December, 1909.

DISTRICT No. 4, LAKE REGION.

Prof. HENRY J. COX, District Editor.

INTRODUCTION.

December, 1909, in the Lake region was in many respects a remarkable month. Steady cold over the southern and western portions after the first few days, with brisk to high winds and heavy and frequent snows unprecedented in localities, deficiency in sunshine and increased humidity, combined to render the weather of the month similar to that of the "old-fashioned" winters. Good sleighing was continuous after the first snowfall, while the frequent storms caused great delays to transportation, and seriously interrupted business over telegraph and telephone wires. By the end of the month much of the ice needed for next summer's consumption had been harvested, and the demand for coal and fuel of all kinds was largely increased. Gas and electric light companies were pushed to extra efforts in order to supply their customers, as a result of the marked increase in cloudiness. Many of the stations of the district, especially those to the lee of the lakes, reported more than 25 cloudy days each, and at Grand Haven, Mich., 30 consecutive cloudy days occurred with 27 days of snowfall.

TEMPERATURE.

The mean temperature of the month was far below the normal over the southwestern portions of the district, extreme departures being reported as follows: Oshkosh, Wis., −8.8°; Appleton and Milwaukee, Wis., −7.1°; Chicago, Ill., −7.6°; South Bend, Ind., −8.2°; Findlay, Ohio, −7.1°. Northeastward from this line of greatest departure around the western and southern shores of Lake Michigan, however, the deficiency decreased quite uniformly to the line of no departure. Beyond the no departure line, covering the greater portion of the Canadian Provinces lying within the St. Lawrence Basin, the mean temperature was above the normal, the departure amounting to more than +6° in the Saguenay Valley.

With the exception of the first day in the valleys of Vermont, the month opened with warm weather in all portions of the district. The highest temperature occurred generally on the 1st in the northwest, on the 5th over the middle sections, and on the 6th in the extreme east. During this period temperatures of 44° occurred in the western Superior region, while at many stations in southern Michigan, northern Indiana, and northern Ohio readings of higher than 60° were recorded, the extreme being 67° at Vickery, Ohio, on the 5th. In the portion of New York State in District No. 4 the maximum did not exceed 59°, and in northern Vermont the highest temperature was 45° at Cornwall, on the 5th.

An area of cold weather which developed in the extreme northwest on December 3 reached the western confines of the district on the 5th, and by the 8th had overspread all portions to the eastward. After the 8th the only instance in which the minimum temperature did not fall to freezing or below in any portion of the district was at Burlington, Vt., on the 14th, when the minimum thermometer showed 33°. Temperatures of zero or below were frequent, especially over the northwest.

From the 10th to the 15th and from the 20th to the 25th areas of somewhat higher temperature crossed the district. The relief, however, was but slight, and the cold may be regarded as practically continuous after the first week of the month. Following the latter of these periods, the cold intensified, and the bitterest weather of the month prevailed generally. Extremely low temperatures were reported as follows: Mount Iron, Minn., −23°; Stephens Mine, Minn., −22°; South Bend, Ind., −13°; Charlotte, Mich., −22°; Medina, Ohio, −15°; Old Forge, N. Y., −25°; Nehasane and Carvers Falls, N, Y., −22°; Enosburg Falls, Vt., −18°.

PRECIPITATION.

The precipitation was normal along the Lake Huron side of the southern peninsula of Michigan. To the eastward, with the exception of areas on the southern shore of Lake Ontario, the precipitation was deficient; to the westward, the amount was greater than the average. Rain fell generally in the sections of the district west of Lake Michigan during the first 5 days of December, but only light and scattered showers occurred over the remaining portions. After the cold weather had overspread the region, however, precipitation in the form of snow was frequent, and the ground was covered continuously, the blanket deepening gradually to the end of the month. The Ohio and Indiana borders of the district had generally the lightest covering, but the depths increased uniformly toward the west, north, and northeast. At the close of the month the covering ranged from 7 inches in northern Ohio to 30 inches and more in Upper Michigan, and in the regions to the leeward of the lakes. The depth was greatest on the eastern shore of Lake Ontario, where, at Adams Center, N. Y., 35 inches lay on the ground, and 94 inches had fallen during the month.

The severest storm of December passed over the district from the 24th to the 26th. High winds drifted the heavy snowfall badly in many localities of Wisconsin, Illinois, Indiana, southern Michigan and Ohio, and the losses resulting from interrupted train service and wire communication were considerable. The stoppage of the movement of coal, together with the increased demands due to the continued cold weather, caused a serious depletion of the visible supply in some of the larger cities, although by the end of the month famine conditions had not yet been reached. The difficulties of transportation were still further increased by the softening of the snow on the ground, due to the slight rise in temperature of this period, so that the severe cold which followed hardened the covering into a compact and crusted mass.

The passage of this storm eastward across the New England portions of the district was also marked by general and, in places complete, interruption of communication by both wire and rail.

The successive storms of the month followed each other so rapidly that in many of the larger cities and towns the removal of the snow was impossible, and the hardening mentioned above left the streets almost barricaded by piles of solid snow.

A severe wind storm preceded the first appearance of cold weather over the central portions of the district, and caused considerable damage in localities. The Section Director of Michigan says in his report: "High southwesterly winds prevailed over most of the Lower Peninsula during the afternoon and night of the 5th, maximum velocities of 50 to 56 miles per hour being recorded at Weather Bureau stations in the southern counties. At Saginaw, W. S., the wind unroofed a brick building causing a damage amounting to about $500." The following Buffalo despatch, reprinted from the *Ithaca Daily News* of December 8, indicates the severity of the storm in that section:

> Following close upon the heels of the heavy blow which raged over the lower Lake region Sunday night and Monday morning, a 72-mile an hour gale fell upon the city last evening. Much damage and discomfort ensued.
>
> Shortly after 5 o'clock the whole city was plunged in darkness, due to the breaking of the transmission line between Buffalo and Niagara Falls, and down town department stores and office buildings were cut off from light. The gale blew down telegraph poles and unroofed freight cars.
>
> At the foot of Porter avenue, in the Niagara River, the dredge Pocantico, with 7 men aboard, was tossed by the wind and careened so that she was swamped and sank, the men having barely time to reach the roof of the cabin. They were 400 feet from shore and the waves were so high that no craft in the harbor could reach them.

Two of the men jumped overboard and reached the shore after a hard battle, and Captain Greiser, of the life-saving station, after a long struggle of several hours, succeeded in rescuing the remaining 5.

This morning the wind has decreased and there are flurries of snow with much lower temperature.

MISCELLANEOUS.

The following extracts from the reports of Weather Bureau officials will furnish information of interest relative to miscellaneous data not incorporated above, as well as to the ice conditions of the district:

Minnesota.—The ground was covered with snow from the 5th to the end of the month, but there was little frost in the ground underneath, a condition which seriously interfered with logging in the northern woods.—*U. G. Purssell, Section Director, Minneapolis.*

Illinois.—The snowfall of December, 19.1 inches, at Chicago, exceeded all former records for that month.—*Local Annual Summary of Chicago.*

Indiana.—The rivers were frozen during most of the month, and considerable ice cutting was done during the latter part, the ice having attained a good thickness.—*V. H. Church, Section Director, Indianapolis.*

Michigan.—Ice began to form on the rivers and harbors during the latter part of the first decade, but, despite the cold weather, did not gain rapidly in thickness on account of the heavy snow covering. In the eastern part of the southern counties, where the snowfall during the early part of the month was not so great, the ice acquired a thickness of 6 to 8 inches during the second decade and 9 to 10 inches during the third decade.—*C. F. Schneider, Section Director, Grand Rapids.*

The total snowfall at Grand Haven exceeded all prior records, but much of it was very downy in character, and settled rapidly.—*C. H. Eshleman, Observer, Grand Haven.*

Ohio.—Light sleet was fairly general on the 7th and 12th. The snowfall was heavier than usual, ranging from 8 to 26 inches, and most of it fell on the 25–26th. The rivers were all frozen at the end of the month.—*M. W. Hayes, Section Director, Columbus.*

The month was the coldest December, with one exception, since 1896. Except for a partial break on the 15th, the Maumee River was frozen over after the 9th, the ice reaching a thickness of 9 inches on the river and 10 to 12 inches on Maumee Bay. Navigation closed here on the 13th and was considerably impeded before that time by ice. The wind movement exceeded that of any previous month except April, 1909, and there were gales on the 5th, 6th, 7th, 8th, 13th, 14th, 17th, and 18th.—*W. S. Currier, Local Forecaster, Toledo.*

New York.—The month in Rochester was characterized by steady weather. There were no great extremes of heat or cold.—*L. M. Dey, Local Forecaster, Rochester.*

Vermont.—Yesterday's low temperature (December 27) made the first impression on Lake Champlain, and by evening the water was steaming in a midwinter manner. The heavy fall of snow has done much to reduce the temperature of the water, and every indication points to an early freezing over of the lake.—*J. K. Hooper, Local Forecaster, Burlington.*

THE LAKE REGION—GENERAL FEATURES.

J. H. ARMINGTON, Local Forecaster.

Climatological District No. 4 comprises the country drained by the St. Lawrence River and its tributary lakes and streams, an area of approximately 530,000 square miles, including about 95,300 square miles of water surface. About 93,900 square miles of the latter area are occupied by the Great Lakes and their connecting streams, the remainder being the water surface of the river system below the outlet of Lake Ontario. The lakes, however, receive the drainage of only about 40 per cent of the entire basin. The foregoing table shows the chief measurements of the system.

	Altitude of surface above sea level.	Greatest depth.	Mean depth.	Surface area.	Area drained.	Basin area.	Length.	Width.
	Feet.	*Feet.*	*Feet.*	*Sq. mi.*	*Sq. mi.*	*Sq. mi.*	*Miles.*	*Miles.*
Lake Superior	602	1,008	475	31,200	54,000	85,200	420	167
St. Marys River	.....	.....	.....	150	800	950	.....	.....
Lake Michigan	581	870	325	22,450	37,700	60,150	300	75
Lake Huron	581	730	250	22,322	31,700	54,022	250	155
St. Clair River	.....	.....	.....	25	3,800	3,825	.....	.....
Lake St. Clair	.....	.....	.....	410	3,400	3,810	.....	.....
Detroit River	.....	.....	.....	25	1,200	1,225	.....	.....
Lake Erie	573	210	70	9,900	22,700	32,600	245	50
Niagara River	.....	.....	.....	15	300	315	.....	.....
Lake Ontario	247	738	300	7,400	21,600	29,000	185	60
St. Lawrence River	.....	.....	.....	1,403	257,500	258,903	.....	.....
Total system	.....	.....	.....	95,300	434,700	530,000		

The whole region is simply a shallow basin of general eastward and northeastward slope, with a series of secondary depressions, occupied by the five great lakes of the area, lying near its southwestern rim. Prior to the formation of these lakes, the St. Lawrence seems to have extended as a trunk stream along an escarpment now submerged near the southern shore of Ontario, thence northwestward through the region occupied by the Georgian Bay and Lake Huron, finally curving westward into Lake Michigan. This trunk stream apparently had two large southern tributaries, the upper flowing in a northeasterly direction entirely across the present southern peninsula of Michigan through Saginaw Bay, and the lower traversing the present bed of Lake Erie. The region then had an elevation of about one-third of a mile greater than is now the case. The lakes appeared at the close of the glacial epoch, when the drift left by the ice sheets covered the original rocks, filled some valleys, dammed others, and completely changed the surface characteristics.

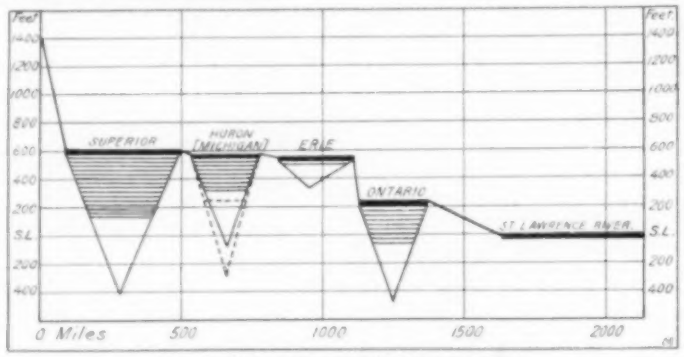

FIG. 1—Elevations of the Great Lakes.

The present elevation of the lakes and their connecting streams is shown in fig. 1. Superior lies at an altitude of 602 feet above sea level. Its discharge descends 21 feet through the St. Marys River to the level of Lakes Michigan and Huron, 581 feet. Practically the entire fall is accomplished within three-quarters of a mile at Sault Ste. Marie, and lock canals are necessary for the passage of shipping. From Huron to Erie the difference of level is only 8 feet, but from Erie to Ontario, a distance of 30 miles, the descent is 326 feet, there being a sheer drop of 160 feet at the Falls. Below the outlet of Ontario the St. Lawrence reaches sea level in about 250 miles, and the remainder of its extent forms an estuary of increasing width until it opens into the sea through the gulf of its own name.

The average as well as the extreme depth of each of the lakes is also shown in fig. 1, the shaded areas representing the average depths, and the apexes of the inverted triangles indicating the deepest soundings. Lake Michigan is shown by dotted lines. It will be noted that Lake Erie alone lies entirely above sea level, and the dangers of navigation thereon are increased considerably by its shallowness.

The rim of the St. Lawrence basin is of but moderate elevation, even along its higher portions at the southeastern side of the depression. Indeed, in places along its extent through the country to the north and east of Lake Superior it becomes rather indistinct, and there are several low and easy portages of only a few miles, over which for a long time merchandise has been carried to and from the trading posts in the region of the Hudson Bay.

In general, the divides hug the lake shores closely, the only broad valleys being those of the Ottawa and Saguenay rivers in the Canadian Provinces below the lake chain. The charts of District No. 4 indicate the divides separating the various drainage areas of the American side of the basin, while

those of the Dominion can readily be followed by the eye. The charted portions of the contiguous territory illustrate clearly by the reach of the rivers therein the slight character of the separation of the St. Lawrence drainage from the Hudson and Mississippi basins.

The relation of the water surface to the surrounding area drained by each lake is easily grasped by reference to the charts. Superior and Michigan each receive the drainage from an area of somewhat less than twice that of their own surfaces, and Huron of an area 1½ times its surface extent. Erie drains a region of twice its own size, while the area of Ontario is one-third of that of the land draining directly into it. .

For the most part the land surface of the basin is comparatively level, except for the mountains of the southeastern border and the hill regions of Lake Superior. The numerous moraines of the southwestern portions enclose hundreds of small lakes, guide the course of the streams, and establish the various divides.

TABLE 1.—*Climatological data for December, 1909. District No. 4, Lake Region.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Minnesota.																				
Duluth	St. Louis	1,133	38	12.4	− 5.3	42	1	− 17	29	32	1.83	+ 0.59	1.18	4.2	11	5	11	15	nw.	U. S. Weather Bureau.
Floodwood	do	1,257	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. H. Schussler.
Mount Iron	do	1,510	15	10.7	− 0.2	42	1	−23	29	31	1.33	+ 0.11	0.85	13.0	14	4	15	12	nw.	Oliver Iron Mining Co.
Stephens Mine	do	.....	2	10.8	.....	44	1	−22	29	33	1.24	.....	0.87	8.3	13	6	9	16	nw.	Do.
Two Harbors	Lake	692	15	17.6	− 1.1	44	1†	− 14	29	23	3.08	+ 2.31	0.75	7.5	9	9	11	11	nw.	Geo. W. Watts.
Wisconsin.																				
Appleton	Outagamie	795	10	17.0	− 7.1	54	1	−10	30	28	2.85	+ 1.18	0.95	26.5	13	7	13	11	nw.	J. L. Mead.
Ashland	Ashland	647	15	17.8	− 2.7	48	1	− 3	30	27	0.94	− 0.30	0.55	5.5	8	6	4	21	sw.	Sam Wheeler.
Cecil	Shawano	804	2	17.2	.....	49	1†	−10	29	32	1.82	.....	0.43	14.0	10	2	20	9	sw.	L. W. Schmidt.
Chilton	Calumet	860	15	15.2[b]	− 5.9	49[b]	1	−11[b]	30	30[b]	3.57	+ 2.19	1.15[b]	28.5[b]	14[b]	5[b]	16[b]	8[b]	nw.	D. V. Jones.
Crandon	Forest	1,060	12	15.8	− 0.9	48	1	− 9	26†	30	1.20	+ 0.88	0.50	7.0	4	13	3	15	w.	A. L. Emde.
Florence	Florence	1,293	17	17.4	− 0.9	48	1	− 5	29†	25	1.43	− 0.11	0.69	10.0	5	3	1	27	nw.	F. S. Evans.
Fond du Lac	Fond du Lac	800	23	15.2	− 6.9	52	1	−17	30	35	2.59	+ 1.18	1.11	24.0	15	6	8	17	sw.	Geo. W. Marshall.
Grand River Locks	Marquette	616	1	15.0	.....	52	5	−14	19	37	1.74	+ 0.41	0.70	24.0	9	10	5	16	nw.	Jerry Parkinson.
Green Bay	Brown	617	23	17.0	− 4.3	50	1	− 9	30	34	2.10	+ 0.29	0.54	22.0	16	2	7	22	sw.	U. S. Weather Bureau.
Herbster	Bayfield	700	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Wm. Angell.
Iron River	Bayfield	1,096	....	14.5	.....	53	1	−11	29	28	1.75	.....	0.90	6.0	9	8	4	19	sw.	Harry C. Hale.
Kewaunee	Kawaunee	590	....	18.6	.....	46	4	− 6	30	23	3.90	.....	0.80	25.0	10	8	8	15	w.	Eugene V. Kimball
Manitowoc	Manitowoc	616	59	18.3	− 5.4	47	5	− 6	30	30	3.20	+ 1.47	1.01	17.2	10	3	13	15	w.	Johanna Lupe.
Menasha	Winnebago	764	12	.....	.....	.....	.....	.....	.....	.....	2.73	+ 1.79	1.65	17.8	8	13	6	12	sw.	George T. Allanson.
Menomonee Falls	Waukesha	842	....	18.1	.....	52	5	− 8	30	32	4.13	.....	1.41	17.0	9	10	8	13	w.	S. H. Christman.
Milwaukee	Milwaukee	681	39	18.9	− 7.1	51	5	− 5	30	36	3.34	+ 1.42	0.79	21.2	17	8	10	13	w.	U. S. Weather Bureau.
New London	Outagamie	762	13	15.8	− 4.3	49	1	−10	18	31	2.35	+ 1.03	1.00	17.2	7	4	5	22	sw.	A. H. Pape.
Oconto	Oconto	590	18	19.1	− 3.8	49	1	− 6	30	25	3.24	+ 1.60	0.83	22.5	11	9	10	12	sw.	W. K. Smith.
Oshkosh	Winnebago	744	20	14.6[a]	− 8.8	50[a]	5	−14[a]	30	34[a]	2.60	+ 1.28	0.90	24.0	5	15	12	4	sw.	Evan Vincent.
Pine River	Waushara	900	14	14.6	− 6.5	50	5	−12	30	39	2.29	+ 0.96	0.71	18.3	11	4	10	17	nw.	G. H. Carpenter.
Plum Island	Door	588	1	24.4	.....	45	5	.....	30	30	3.27	.....	1.18	16.9	10	3	10	18	nw.	John P. Whelan.
Port Washington	Ozaukee	713	16	18.7	− 5.4	47	1	− 8	30	27	5.02	+ 3.49	1.20	28.0	10	9	4	18	nw.	R. C. Kann.
Racine	Racine	633	12	19.2	− 6.6	48	1†	− 8	30	28	3.50	+ 2.17	1.03	.....	14	10	1	20	nw.	Daniel Davis.
Sheboygan	Sheboygan	831	9	19.6	− 6.6	47	5	− 5	30	35	4.65	+ 3.20	1.20	31.5	11	10	7	14	nw.	Louis C. Meyer.
Sturgeon Bay	Door	600	11	19.8	− 5.7	50	4	− 3	30	29	4.28	.....	1.64	36.5	10	6	12	13	w.	Adam N. Dier.
Superior[‖]	Douglas	671	....	14.6[b]	.....	42[b]	1	−12[b]	29†	37[b]	2.34	.....	1.80[b]	0.9[b]	9[b]	8[a]	10[a]	12[a]	nw.[a]	E. B. Banks.
Waupaca	Waupaca	857	13	15.2	− 4.5	50	1	−14	16	33	2.20	− 0.99	0.81	20.5	6	10	5	16	w.	J. H. Flagg.
Illinois.																				
Chicago	Cook	824	39	21.7	− 7.6	55	5	− 7	30	36	4.18	+ 2.11	0.95	19.1	18	6	9	16	w.	U. S. Weather Bureau.
Indiana.																				
Auburn	Dekalb	874	6	19.0[b]	.....	60	5	− 9	30	39	2.87	.....	0.85	.....	12	9[a]	0[a]	21[a]	sw.	Mrs. Josie Kuhlman.
Elkhart[‖]	Elkhart	801	....	23.0	.....	58	5	− 6	30	37	2.77	.....	1.08	15.1	12	7	4	20	sw.	Miles Medical Co.
Fort Wayne	Allen	775	5	22.4	.....	63	5	− 9	30	30	2.74	.....	0.95	18.0	13	5	9	17	sw.	O. E. Mohler.
Hammond	Lake	598	12	21.6	− 4.6	58	5	− 9	30	31	2.15	− 0.23	0.55	20.0	9	4	2	25	.....	C. W. Whitney.
Lima	Lagrange	886	....	21.3	.....	60	4	− 6	31	43	2.60	.....	1.20	14.0	6	13	1	17	w.	Jas. E. Zook.
South Bend	St. Joseph	726	10	19.6	− 8.2	57	5	−13	30	44	3.40	+ 0.33	0.52	21.5	16	8	4	19	sw.	H. H. Swaim.
Michigan.																				
Adrian	Lenawee	707	31	22.0	− 5.3	62	5	− 6	29	23	3.08	+ 0.50	1.75	11.5	7	4	7	20	sw.	B. F. Gibbs.
Agricultural College	Ingham	820	45	23.1	−3.0	56	3	− 7	29	26	2.91	+ 0.92	0.70	19.0	14	1	25	5	w.	Prof. A. J. Patten.
Allegan	Allegan	698	18	24.8	− 3.5	58	1	− 3	29	34	7.74	+ 5.30	1.10	64.0	19	1	1	29	w.	Agent, P. M. R. R.
Alma	Gratiot	750	22	23.0	− 3.6	56	5	−10	29	27	4.17	+ 1.88	1.53	26.0	10	3	5	23	sw.	P. M. Smith.
Alpena	Alpena	609	36	24.0	− 0.8	46	5	2	30	20	3.00	+ 0.78	0.90	27.7	18	3	5	23	w.	U. S. Weather Bureau.
Ann Arbor	Washtenaw	930	29	22.5	− 4.3	59	5	− 6	29	25	1.81	− 0.48	0.79	14.3	10	1	11	19	w.	University of Michigan.
Arbela	Tuscola	728	13	23.2	− 2.9	57	5	−14	29	27	3.78	+ 1.46	0.67	22.0	15	0	4	27	sw.	Wm. Atkin.
Ball Mountain	Oakland	983	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. N. Hilton.
Baraga	Baraga	623	7	22.0[a]	.....	50[a]	1	− 7[a]	29	35[a]	1.35	.....	0.40	13.5[a]	7[a]	6[a]	0[a]	24[a]	s.	Agent, D. S. S. & A. Ry
Battle Creek	Calhoun	822	25	21.0	− 6.6	58	5	− 5	29	30	2.39	+ 0.05	0.70	12.0	9	3	9	19	sw.	Elmer E. Sager.
Bay City	Bay	593	13	.....	.....	.....	.....	.....	.....	.....	5.90	+ 4.04	.....	22.0	10	2	4	25	w.	Agent, P. M. R. R.
Benzonia	Benzie	832	13	24.4	− 2.2	54	1	6	29	24	5.19	+ 1.88	.....	.....	.....	1	4	26	se.	M. S. Joiner.
Berlin	St. Clair	.....	20	21.8	− 4.7	55	5	− 7	29	22	2.14	− 0.20	0.88	11.9	16	2[a]	5[a]	23[a]	sw.[a]	R. O. Gould.
Big Rapids	Mecosta	906	13	21.7	− 2.1	53	5	−14	29	28	4.22	+ 1.96	1.00	28.0	13	2	4	25	w.	Charles Gay.
Blaney	Schoolcraft	.....	2	21.8	.....	56	5	−10	19	42	2.67	.....	0.95	17.0	8	7	16	8	sw.	Dr. S. S. Hackwell.
Bloomingdale	Van Buren	.....	5	22.6	.....	56	5	− 9	29	28	5.14	.....	1.00	27.5	16	2	2	27	sw.	John M. Haven.
Cadillac	Wexford	1,378	....	21.3	.....	51	6	− 4	29	33	2.47	.....	0.55	30.0	16	5	2	24	w.	A. J. Teed.
Calumet	Houghton	1,246	21	20.0	− 1.2	45	1	0	29	30	4.53	+ 1.65	0.82	40.5	21	1	5	25	nw.	E. S. Grierson.
Cassopolis	Cass	903	8	21.4	.....	54	1	− 7	29	30	2.00	.....	0.60	20.0	6	1	0	30	sw.	Agent, M. C. R. R.
Charlevoix	Charlevoix	610	22	27.0[c]	− 1.3	54[c]	3	2[c]	29	29[c]	4.37	+ 1.99	1.80[c]	42.5[c]	12[c]	4[c]	4[c]	20[c]	sw.	Agent, P. M. R. R.
Charlotte	Eaton	.....	5	22.2	.....	59	5	−22	29	44	1.70	.....	0.70	11.0	5	2	1	28	sw.	City of Charlotte.
Chatham	Alger	875	8	18.9	.....	48	1†	− 6	21	30	3.72	.....	0.56	30.4	21	5	5	21	nw.	U. P. Express Station.
Cheboygan	Cheboygan	611	19	23.0	− 1.0	50	5	− 4	29	30	2.12	+ 0.28	0.65	22.0	8	4	13	14	w.	E. A. Bouchard.
Clinton	Lenawee	830	19	23.4	− 4.4	61	5	−10	30	40	2.11	− 0.11	0.65	13.2	6	6	4	21	sw.	David Woodward.
Coldwater	Branch	984	12	21.3[a]	− 5.4	59[a]	5	−10[a]	8	36[a]	2.66	+ 0.05	0.68[a]	16.0[a]	8[a]	3[a]	3[a]	24[a]	sw.[a]	Agent, L. S. & M. S. Ry
Concord	Jackson	.....	4	23.2	.....	60	6	−12	29	45	2.38	.....	0.75	.....	5	.....	.....	.....	.....	J. S. Arthur.
Croton	Newago	681	1	23.6	.....	54	5	−14	29	29	3.44	.....	0.59	23.0	16	1	11	19	w.	G. R. M. Power Co.
Deer Park	Luce	610	8	24.0	.....	48	5	0	29	31	3.95	.....	0.80	37.5	11	5	0	26	nw.	Mrs. Sarah E. McGaw.
Detour	Chippewa	585	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	14	16	se.	Nelson Abear.
Detroit	Wayne	730	38	23.0	− 6.5	59	25	− 1	29	22	2.59	+ 0.20	1.00	14.7	17	2	5	24	w.	U. S. Weather Bureau.
Durand	Shiawassee	799	2	23.4	.....	57	5	− 7	29	30	1.64	.....	0.76	8.0	7	3	10	18	sw.	Agent, C. T.Dis.G.T.Rv.
Eagle Harbor	Keweenaw	622	10	24.8	+ 1.4	45	1†	− 8	29†	26	3.01	− 0.03	0.80	22.1	19	0	3	28	nw.	John Nolen.
East Tawas	Iosco	790	12	23.9	− 0.8	51	5	− 3	29†	28	.....	.....	.....	.....	.....	.....	.....	.....	w.	Agent, D. & M. Ry.
Eloise	Wayne	640	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Wayne Co. House.
Escanaba	Delta	612	36	20.6	− 1.0	47	2	2	30	31	3.57	+ 1.87	1.47	20.8	14	4	7	20	w.	U. S. Weather Bureau.
Ewen	Ontonagon	1,147	8	17.7	.....	54	1	−10	28	32	2.75	.....	0.30	27.5	19	1	1	29	w.	W. B. Hatfield.
Flint	Genessee	730	20	23.5	− 3.1	59	5	− 7	29	27	1.66	− 0.16	0.50	8.5	10	3	5	23	w.	Wm. L. Fisher.
Frankfort	Benzie	589	5	26.2[a]	.....	50	5	10[b]	8†	20[b]	6.30	.....	0.80	52.0	22	0	0	31	w.	Capt. G. Morency.
Ganges	Allegan	605	....	24.7	.....	55	5	1	29	29	5.49	.....	1.00	49.0	23	1	2	28	sw.	H. H. Hutchins.
Gaylord	Otsego	1,367	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, M. C. R. R.
Gladwin	Gladwin	794	13	22.7	− 2.3	55	5	−11	29	30	3.25	+ 1.73	1.05	26.0	9	17	0	14	sw.	Geo. R. Smith.
Grand Haven	Ottawa	628	28	25.0	− 5.1	56	5	2	28†	34	4.29	+ 1.78	0.68	47.4	25	0	1	30	w.	U. S. Weather Bureau.
Grand Marais	Alger	610	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. Lena Truedell.
Grand Rapids	Kent	707	20	24.0	− 4.8	57	5	− 4	29	36	3.10	+ 0.56	0.76	24.2	20	2	2	27	sw.	U. S. Weather Bureau.
Grape	Monroe	625	19	23.0	− 5.9	62	5	− 9	29	29	2.06	+ 0.08	0.71	14.2	8	4	11	16	sw.	Jos. W. Morris.
Grass Lake	Jackson	989	3	22.2	.....	59	5	−10	29	39	2.39	.....	0.66	25.0	10	6	1	24	sw.	Menzo Conklin.
Grayling	Crawford	1,147	20	21.8	− 1.2	54	4	−10	29	31	3.86	+ 1.60	1.00	37.5	21	3	23	5	nw.	Dr. Oscar Palmer.
Harbor Beach	Huron	635	21	25.4	− 1.9	60	14	2	29†	30	3.40	+ 1.68	0.80	26.0	11	4	4	23	w.	Agent, P. M. R. R.
Harrison	Clare	1,159	16	23.6	+ 0.3	62	6	−13	29	26	3.10	+ 1.34	1.20	31.0	5	1	5	25	w.	Do.
Harrisville	Alcona	616	25	24.0	− 0.5	46	6	− 2	29	25	4.62	+ 1.97	1.20	39.0	17	4	6	21	sw.	Dr. D. W. Mitchell.
Hart	Oceana	698	17	21.3[c]	.....	46[c]	2	0[c]	19	32[c]	3.33	.....	0.43[c]	26.0[c]	14[c]	0[c]	7[c]	19[c]	w.[c]	Agent, P. M. R. R
Hayes	Huron	620	10	26.0	− 1.2	64	5	1	30	26	2.10	+ 0.47	0.60	21.0	7	3	5	23	sw.	C. F. Leipprandt.
Highland	Oakland	820	18	.....	.....	.....	.....	.....	.....	.....	2.31	− 0.22	0.80	14.6	8	.....	.....	.....	.....	A. D. De Garmo.
Hillsdale	Hillsdale	1,150	12	21.4	− 3.9	59	5	− 5	29	32	2.23	− 0.33	0.50	11.2	11	4	5	22	w.	Prof. C. L. Herron.

TABLE 1.—*Climatological data for December, 1909. District No. 4*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Michigan—Cont'd.																			
Holland	Ottawa	610	3	24.4	.....	57	5	−16	29	32	5.98	.....	0.90	47.0	22	1	2	28	w.	City of Holland.
Houghton	Houghton	668	8	21.8	+ 0.9	47	1	4	29	30	2.61	+ 0.14	0.64	32.5	23	0	5	26	nw.	U. S. Weather Bureau.
Howell	Livingston	924	17	21.3[b]	− 5.3	56[b]	3	−13[b]	29	32[b]	1.90	+ 0.18	0.60	9.7	7	5	11	15	sw.	Frank Sharp.
Humboldt	Marquette	1,536	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, D. S. S. A. Ry.
Iron Mountain	Dickinson	1,111	8	21.2[c]	.....	49[f]	1†	− 3[a]	29	32	1.56	.....	0.72	6.5	5	1[a]	9[a]	20[a]	nw.	Chapin Min. Co.
Iron River	Iron	1,504	12	18.6	+ 2.9	56	5	− 7	31	37	2.00	+ 0.79	0.90	8.0	5	11	10	10	nw.	Victor D. Laing.
Ironwood	Gogebic	1 520	6	16.1	.....	50	1†	− 6	29	31	2.43	.....	0.61	26.0	10	5	3	23	w.	Prof. J. V. Brennan.
Ishpeming	Marquette	1,536	6	19.0[f]	.....	48[f]	1	− 3[f]	30	36[f]	2.15	.....	0.60	15.0	15	1	9	21	nw.	Clo'd Cliffs Iron Co.
Isle Royale	Keweenaw	610	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John H. Malone.
Ivan	Kalkaska	.....	20	20.7	− 3.2	54	5	0	30	23	2.82	+ 0.48	0.30	33.7	19	1	14	16	w.	O. L. Giddings.
Jackson	Jackson	927	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, M. C. R. R.
Jeddo	St. Clair	667	20	23.0	− 3.8	51	5	− 2	29	27	2.90	+ 0.72	0.40	23.2	20	3	8	20	sw.	William Bice.
Kalamazoo	Kalamazoo	955	33	21.0	− 6.8	50	4	− 1	29	20	3.66	+ 0.87	0.75	24.5	16	1	4	26	sw.	Kalamazoo Asylum.
Lansing	Ingham	881	22	22.6	− 5.1	61	5	− 7	29	30	2.88	+ 0.83	0.64	19.2	17	2	5	24	sw.	State Board of Health.
Lapeer	Lapeer	827	10	22.6	− 2.9	50	5	− 8	29	24	.....	.....	.....	.....	.....	3	7	21	sw.	Michigan Home.
Ludington	Mason	586	11	26.6[d]	.....	58[d]	6	7[d]	29	38[d]	1.94	.....	0.57[d]	16.0[d]	7[d]	1[d]	3[d]	23[d]	nw.[d]	Agent, P. M. R. R.
Mackinac Island	Mackinac	831	9	20.1[d]	.....	37[e]	13	− 7	28	15[e]	.....	.....	.....	.....	.....	10	8	13	e.	M. I. S. P. Com.
Mackinaw	Cheboygan	592	13	26.2	+ 2.7	48	24	1	28†	38	1.07	− 0.89	.....	10.7	11	4	0	27	sw.	Agent, G. R. & I. Ry.
Mancelona	Antrim	1,121	13	21.5	− 0.9	52	5	−11	29	35	3.40	+ 0.71	0.70	34.0	12	3	3	25	w.	Do.
Manistee	Manistee	600	12	25.8	− 1.8	52	1	6	29	23	3.85	+ 1.42	0.90	22.0	13	0	6	25	nw.	Agent, P. M. R. R.
Maple Ridge	Delta	.....	3	18.7	.....	48	1	− 7	28	34	3.31	.....	0.85	22.0	10	8	2	21	nw.	Herman Johnson.
Marquette	Marquette	734	38	21.8	− 1.1	49	4	5	30	29	3.42	+ 0.90	0.67	34.4	17	2	11	18	w.	U. S. Weather Bureau.
Menominee	Menominee	581	10	19.7	− 3.5	44	1†	− 4	30	35	2.40	+ 1.59	1.15	18.0	5	15	0	16	nw.	Fire Department.
Midland	Midland	604	10	26.2	0.0	55	5	−15	29	35	1.99	+ 0.63	0.93	18.5	8	3	1	27	sw.	Agent, P. M. R. R.
Montague	Muskegon	660	6	23.5[b]	.....	53[b]	5	− 4[b]	27	28[b]	.....	.....	.....	.....	.....	0[b]	8[b]	21[b]	nw.[b]	G. A. Whitbeck.
Morencie	Lenawee	811	2	23.0	.....	61	5	− 4	29	34	2.79	.....	0.68	15.0	8	4	5	22	sw.	George J. Tripp.
Mount Clemens	Macomb	615	9	22.9	.....	60	11	1	9	46	2.67	.....	1.05	8.0	7	6	8	17	sw.	Herman H. Orbits.
Mount Pleasant	Isabella	826	10	23.5	− 1.3	50	4†	− 8	29	30	2.16	+ 0.56	1.00	19.7	6	4[b]	7[b]	18[b]	sw.	Agent, P. M. R. R.
Muskegon	Muskegon	587	13	23.7	− 4.0	50	1	− 4	29	25	3.55	+ 1.64	0.60	27.0	15	1	2	28	w.	Agent, G. R. & I. Ry.
Newberry	Luce	773	8	22.2[a]	.....	55[b]	5†	− 5	29†	40[b]	.....	.....	.....	.....	.....	.....	.....	.....	nw.	Agent, D. S. S. & A. Ry.
Old Mission	Grand Traverse	848	15	25.7	− 0.9	59	2	0	29	30	5.04	+ 3.33	1.10	40.2	22	2	7	22	nw.	E. O. Ladd.
Olivet	Eaton	934	18	21.5	− 5.4	57	5	− 8	29	32	2.66	+ 0.02	0.61	14.4	13	6	0	25	sw.	Prof. G. A. Knapp.
Omer	Arenac	616	10	.....	.....	.....	.....	.....	.....	.....	4.00	+ 2.72	1.50	25.0	5	0	7	24	se.	Agent, D. & M. Ry.
Onaway	Presque Isle	826	6	22.0	.....	50	1	− 4	30	20	2.80	.....	0.80	22.0	10	0	0	31	sw.	Do.
Ovid	Clinton	760	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	George B. Faxon.
Owosso	Shiawassee	731	12	23.8	− 2.5	59	5	−10	29	31	3.11	+ 1.64	0.60	24.0	13	2	14	15	sw.	Owosso Sugar Co.
Petoskey	Emmet	660	19	25.8	0.0	62	4	− 3	29	27	5.26	+ 2.86	0.60	50.0	15	0	8	23	e.	Agent, G. R. & I. Ry.
Plymouth	Wayne	725	12	24.0[c]	− 4.7	58[e]	5	3[c]	9	28[e]	1.12	− 0.68	0.50[c]	7.5[c]	4[c]	1[c]	7[c]	20[c]	w.	Agent, P. M. R. R.
Pontiac	Oakland	935	9	23.0	.....	53	6	− 5	29	31	3.21	.....	1.20	10.9	9	5[a]	8[a]	17[a]	w.	Fred W. Shaw.
Port Austin	Huron	618	13	25.1	− 1.8	48	6	9	29†	24	.....	.....	.....	.....	.....	3	0	28	sw.	Agent, P. M. R. R.
Port Huron	St. Clair	639	34	23.6	− 3.7	55	5	1	29	28	1.86	− 0.31	0.41	17.6	16	2	4	25	sw.	U. S. Weather Bureau.
Powers	Menominee	868	8	19.7	− 1.3	51	1	− 9	30	35	1.20	.....	0.60	12.0	5	2	16	13	n.	Agent, C. & N. W. Ry.
Reed City	Osceola	1,033	13	21.4	− 2.2	51	5	−15	29	29	2.37	+ 0.91	0.70	25.0	14	6	6	19	w.	Agent, P. M. R. R.
Roscommon	Roscommon	1,141	5	21.0[d]	.....	53[d]	5	−13[d]	30	28[d]	2.79	.....	1.00[d]	26.0[d]	10[d]	3[d]	5[d]	19[d]	w.[d]	Agent, M. C. R. R.
Saginaw	Saginaw	601	7	24.8	.....	59	5	− 6	29	28	4.65	.....	1.40	24.5	17	3	14	14	sw.	Postmaster.
Saginaw, W. S	....do	601	14	24.0	− 2.6	66	5	− 9	29	30	3.11	+ 1.15	0.72	20.0	20	2	15	14	sw.	R. B. Hudson.
St. Ignace	Mackinac	593	19	25.8	+ 1.5	49	1	4	30	23	2.31	+ 0.27	1.05	13.0	12	0	9	22	w.	Agent, D. S. S. & A. Ry.
St. James	Charlevoix	681	3	24.8	.....	60	6	0	28†	23	.....	.....	.....	.....	.....	0	9	22	sw.	Rev. N. Wilhelm.
St. Johns	Clinton	779	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	City of St. Johns.
St. Joseph	Berrien	593	23	25.1	− 6.1	58	6	0	30	33	4.70	+ 1.75	0.80	29.0	15	1	1	29	sw.	City of St. Joseph.
Sandusky	Sanilac	790	....	23.2[d]	.....	54[d]	6	− 5[d]	29	29[d]	3.13	.....	1.40[d]	17.0[d]	10[d]	.....	.....	.....	nw.[d]	Agent, P. M. R. R.
Saranac	Ionia	639	14	22.6	− 4.9	58	5	−22	29	36	2.92	+ 0.11	1.00	18.5	14	1	2	28	sw.	John Wallington.
Sault Ste. Marie	Chippewa	614	21	21.0	+ 0.5	46	5	−10	29	24	1.91	− 0.42	0.60	13.1	18	1	4	26	e.	U. S. Weather Bureau.
South Haven	Van Buren	585	13	24.0	− 3.9	56	5	2	30	30	3.35	− 0.26	0.70	.....	14	2	7	22	sw.	Mrs. M. E. De Diemar.
Stanton	Montcalm	880	17	25.8[b]	− 0.7	60[b]	4	−10[b]	28	28[b]	.....	.....	.....	.....	.....	6[b]	2[b]	21[b]	sw.[b]	City of Stanton.
Thomaston	Gogebic	1,347	12	16.2	+ 1.4	45	1†	−12	28	33	2.69	+ 0.82	0.90	20.0	10	2	8	21	n.	Agent, D. S. S. & A. Ry.
Thornville	Lapeer	975	32	23.9	− 4.3	48	4	−11	29†	40	3.10	+ 0.74	0.60	24.0	11	3	3	25	w.	Dr. J. S. Caulkins.
Traverse City	Grand Traverse	588	12	.....	.....	.....	.....	.....	.....	.....	2.90	+ 0.37	0.30	29.0	13	7	5	19	nw.	Agent, G. R. & I. Ry.
Vassar	Tuscola	641	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, P. M. R. R.
Victoria	Ontonagon	.....	....	16.0	.....	53	1	− 6	29	34	1.38	.....	0.26	34.5	20	4	2	25	sw.	R. S. Schultz, Jr.
Watersmeet	Gogebic	1,605	....	16.8	.....	52	1	−10	28	33	1.02	.....	0.30	6.4	18	4	4	23	nw.	B. H. Grant.
Wasepi	St. Joseph	842	12	20.8	− 5.1	58	5	− 7	30	32	2.73	− 0.15	0.70	13.5	10	4	0	27	sw.	Charles A. Palmer.
Webbersville	Ingham	884	7	22.3	.....	59	5	−10	29	27	2.81	.....	1.12	16.5	13	3	26	2	sw.	J. R. Wadsworth.
West Branch	Ogemaw	973	7	.....	.....	.....	.....	1	8	.....	2.10	.....	1.00	21.0	4	4	16	11	n.	Agent, M. C. R. R.
Wetmore	Alger	878	12	23.0	+ 3.9	48	1†	− 2	24	38	4.50	+ 2.15	0.50	43.0	15	7	0	24	w.	Agent, D. S. S. & A. Ry.
Whitefish	Chippewa	610	19	24.6[a]	+ 2.5	46[a]	5	− 2[a]	29	29[a]	5.66	+ 3.62	1.34[a]	57.2[a]	16[a]	6[a]	1[a]	24[a]	nw.	Robert Carlson.
Woodlawn	Montmorency	.....	7	20.4	.....	50	5	−13	30	27	3.32	.....	0.71	30.0	16	1	4	26	sw.	T. C. Mathews.
Ypsilanti	Washtenaw	736	24	22.1	− 5.0	59	5	− 6	29†	25	2.66	+ 0.14	0.82	12.0	9	0	24	7	sw.	Orin J. Bemiss.
Ohio.																				
Akron	Summit	1,081	23	24.8	− 6.0	65	5†	− 3	30	42	2.29	− 0.32	0.65	11.0	10	7	1	23	sw.	Prof. C. R. Olin.
Benton Ridge	Hancock	800	17	25.0	− 5.1	65	5	− 4	30	34	2.39	− 0.39	0.64	11.0	11	6	9	16	sw.	J. W. Powell.
Bowling Green	Wood	670	17	23.4	− 5.1	56	4	− 6	29	32	2.53	− 0.22	0.90	9.0	9	6	9	16	sw.	C. G. Housekeeper.
Bucyrus	Crawford	1,000	11	22.8	− 6.5	58	5	−10	30	32	3.36	+ 0.53	1.10	13.5	11	8	10	13	sw.	J. R. Hopley.
Cleveland (1)	Cuyhoga	762	39	24.7	− 6.4	63	5	1	30	34	2.05	− 0.53	0.62	16.3	20	3	5	23	sw.	U. S. Weather Bureau.
Cleveland (2)§	....do	754	13	24.7	− 4.1	63	5	− 2	30	33	2.12	− 0.18	0.40	17.7	16	3	3	25	sw.	F. Odenbach, S. J.
Defiance	Defiance	712	16	22.7	− 6.3	62	5	−12	29	40	1.66	− 1.04	0.71	9.4	11	8	3	20	sw.	J. F. Heilshorn.
Findlay	Hancock	776	20	22.8	− 7.1	65	5	− 5	30	33	2.02	− 0.32	1.07	8.0	5	13	10	8	se.	Dr. E. A. Moser.
Fremont§	Sandusky	.....	9	25.0	.....	66[a]	5	− 3	29	33	2.15	.....	1.13	15.0	4	8	8	15	sw.	E. S. Thomas.
Hedges	Paulding	725	12	22.8[c]	− 5.9	60[c]	5	− 9[c]	30	31[c]	3.17	+ 0.50	0.78[c]	15.0[c]	10[c]	10	6	15	w.	Charles Stutsman.
Hillhouse	Lake	1,000	18	24.2	− 4.6	60	5†	4	9	37	2.01	− 1.14	0.29	25.0	14	4	5	22	sw.	J. W. Doncaster.
Hiram	Portage	1,260	25	23.6	− 6.1	61	5	− 1	30	27	1.85	− 1.15	0.72	14.0	13	7	2	22	sw.	George H. Colton.
Hudson	Summit	1,153	15	22.6	− 4.6	61	5	− 6	30	42	2.58	− 0.11	0.93	14.0	7	10	9	12	w.	W. I. Chamberlain.
Lima	Allen	875	9	24.2	.....	64	4	− 8	30	28	3.55	.....	0.68	16.0	9	11	8	12	w.	Miss Ollie De Long.
Medina	Medina	944	15	23.9	− 4.7	65	5	−15	30	31	2.21	− 0.61	0.68	14.0	7	9	4	18	w.	F. W. Clark.
Montpelier	Williams	.....	18	22.4	− 4.7	59	5	− 5	29	31	4.39	+ 1.73	1.00	26.0	14	6	2	23	w.	G. L. Laser.
Napoleon	Henry	680	17	23.8	− 5.3	62	5	− 5	30	40	2.68	− 0.04	0.80	10.5	9	9	2	20	w.	A. C. Senter.
New Bremen	Auglaize	1,038	16	23.8	− 6.5	62	4†	−10	30	28	1.89	− 0.84	0.50	10.0	10	8	14	9	w.	Lillian Grothaus.
North Royalton	Cuyahoga	1,000	17	23.6	− 5.5	63	5	−10	30	26	2.39	− 0.36	0.69	16.0	9	11	7	13	w.	W. S. Edgerton.
Norwalk	Huron	719	16	25.6	− 4.7	68	5	− 3	29†	35	1.90	− 0.80	0.55	10.6	8	12	6	13	w.	A. Sheldon.
Oberlin	Lorain	835	27	25.4	− 5.3	65	5	− 7	13	35	2.18	− 0.03	0.68	16.9	11	12	2	17	w.	Prof. F. F. Jewett.
Ottawa	Putnam	720	15	23.4	− 5.3	64	5	− 7	30	34	2.31	− 0.20	0.80	9.5	9	2	9	20	w.	John T. Maidlow.
Rocky Ridge	Ottawa	590	16	24.6	− 5.1	65	5	.....	.....	.....	.....	.....	.....	.....	.....	6	3	22	.....	Anson Green.
Rome	Ashtabula	.....	7	25.8[a]	.....	60[a]	5	.....	.....	.....	2.81	.....	0.91[a]	19.0[a]	7[a]	.....	.....	.....	.....	G. H. Crosby.
Sandusky	Erie	629	33	24.2	− 6.9	66	5	− 3	29	37	2.23	− 0.12	0.70	13.1	13	3	7	19	sw.	U. S. Weather Bureau.
Tiffin	Seneca	775	24	24.8	− 6.1	64	5	− 3	30	27	2.81	+ 0.19	0.92	14.5	12	5	15	11	w.	T. H. Sonnedecker.
Toledo (1)	Lucas	628	39	24.4	− 6.1	62	5	0	29	34	3.05	+ 0.75	1.09	15.1	13	6	6	19	sw.	U. S. Weather Bureau.
Toledo (2)§	....do	608	6	24.4	.....	54	1†	− 2	29	27	2.60	.....	0.76	.....	14	5	8	18	sw.	J A. Krance.

TABLE 1.—*Climatological data for December, 1909. District No. 4*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Ohio—Cont'd.																			
Upper Sandusky	Wyandot	854	27	25.2	− 6.0	64	5	− 7	30	32	2.80	+ 0.09	0.75	16.5	13	13	6	12	w.	R. S. Kiefer.
Vickery	Sandusky	588	17	24.0	− 5.7	67	5	− 6	29	36	2.42	− 0.05	0.70	11.3	13	6	9	16	w.	John W. Barr.
Wauseon	Fulton	780	40	22.9	− 4.5	60	5	− 6	29	31	3.06	+ 0.36	0.87	18.4	13	3	7	21	sw.	Thomas Mikesell.
Wellington[a]	Lorain	856	17	25.0	− 5.5	65	5	− 2	30	33	1.59	− 0.79	0.75	15.5	8	9	3	19	sw.	W. D. Warren.
Willoughby	Lake																			C. J. Richardson.
Pennsylvania.																				
Erie	Erie	713	36	26.2	− 5.5	61	5	9	9	24	1.85	− 1.21	0.40	18.1	21	3	2	26	sw.	U. S. Weather Bureau.
New York.																				
Adams Center	Jefferson	540	18	25.0		49	7	−17	30	30	9.53	+ 5.56	1.52	94.0	24	5	9	17	n.	A. E. Cooley.
Angelica	Allegany	1,340	26	24.0	− 1.8	53	5	−11	30	29	1.19	− 1.47	0.35	13.0	15	1	6	24	w.	Charles P. Arnold.
Appleton	Niagara	270	18	27.4	− 2.3	51	6	6	29	21	2.07	− 0.38	1.09	5.3	11	2	6	23	w.	H. A. Van Wagoner.
Auburn	Cayuga	715	40	25.0	− 4.0	45	6	2	30	20	2.03	− 0.73	0.52	23.0	14	15	11	5	nw.	A. H. Underwood.
Avon	Livingston	585	14	24.8	− 2.5	47	6	1	29†	22	1.48	− 0.37	0.44	10.5	7	0	4	27		W. G. Markham.
Benson Mines	St. Lawrence		1																	R. C. Folger.
Blue Mountain Lake	Hamilton	1,750	9								3.30	− 0.64	1.20	33.0	17	8	0	23	w.	B. F. Merwin.
Brockport	Monroe	537	13	26.3	− 0.9	49	5	5	29†	21	2.18	− 0.88	0.92	8.5	14	1	10	20	w.	W. H. Lennon.
Buffalo	Erie	767	58	26.6	− 3.5	55	5	4	30	21	4.20	+ 0.83	1.16	25.9	21	2	2	27	w.	U. S. Weather Bureau
Canton	St. Lawrence	448	15	19.8	− 2.9	42	14	−13	29	24	1.29	− 2.30	0.34	6.8	18	1	4	26	w.	Do.
Cape Vincent	Jefferson	246	4	24.0		43	5	− 1	29	18	2.11		0.50		11	5	11	15	sw.	V. M. Rice.
Carvers Falls	Washington	243	11	21.4	− 0.9	44	6	−22	30	32	1.40	− 1.36	0.30	12.0	4	16	5	10	n.	W. Fancher.
Chazy	Clinton	151	13	21.6	+ 1.7	42	7	− 7	30	26	0.50		0.20	5.0	4	8	2	21	n.	W. R. North.
Dannemora	do	1,490	4	18.6		38	6	− 8	30	18	2.00		0.82	24.5	12	7	12	12	w.	W. N. Thayer.
Elba	Genesee	500	10	24.4	− 1.6	51	6	1	30	23	3.05	− 0.13	0.80	16.0	9	15	5	11	sw.	Jos. S. Wilfert.
Faust	Franklin	1,552	9	17.2°		42°	5	−18	31	36°	2.06	− 0.46	0.42	18.0	14	7	2	22	w.	Aaron W. Maddox.
Fayetteville	Onondaga	530	8	24.5		44	5	−18	30	30	1.62	− 1.11	0.52	14.0	13	2	9	20	nw.	D. H. Wells.
Gabriels	Franklin	1,729	7	17.0		40	5	−14	31	37	1.47		0.25		22	3	7	21	nw.	W. S. Everham.
Harkness	Clinton	622	6	21.2		42	5†	− 7	30	24	1.01		0.60	11.0	8	20	2	9	w.	J. W. Harkness.
Hemlock Lake	Livingston	909	11	25.1	− 2.9	45	5†	2	29	20	0.33	− 1.61				4	8	19	sw.	D. H. Westbury.
Hunt	do	1,321	10	26.4	− 0.3	54	5	− 4	30	25	1.32	− 1.46	0.68	6.0	5	5	6	20	w.	W. S. Barrager.
Ithaca	Tompkins	928	31	26.1	− 2.3	43	6	5	29	23	1.21	− 1.43	0.52	10.3	10	4	2	25	nw.	U. S. Weather Bureau.
Keene Valley	Essex	1,060	11	19.5	− 0.2	43	5	−14	29	37	2.10	− 0.80	0.74	19.8	11	7	13	11	w.	E. R. Wells.
Keuka Park	Yates	750	63																	Dean L. Myers.
King Ferry	Cayuga		9								1.01	− 1.39	0.28	14.1	12	3	1	27	sw.	L. A. Goodyear.
Lake George	Warren	350	4	24.0	− 0.2	43	5	− 7	31	24	2.86	− 0.80	1.29	20.5	7	6	16	9	ne.	Charles Forsell.
Lake Placid Club	Essex	1,864	1	15.8		36	7	−16	31	32	3.67		0.85	33.6	17	5	13	13	nw.	Henry Van Hoevenberg.
Le Roy	Genesee	920	19	25.5	− 2.1	49	6	2	29	22	2.08	− 0.93	0.43	15.8	19	1	5	25	w.	F. W. Ball.
Lockport	Niagara	650	22	26.4	− 3.5	50	6	3	30	22	2.57	+ 0.06	1.15	10.4	11	2	3	26	w.	J. E. Wakeman.
Lowville	Lewis	900	42	19.8	− 3.0	43	6	−18	29†	32	2.71	− 0.46	0.80	13.0	7	8	5	18	w.	Charles J. Rice.
Lyndonville	Orleans		9								1.84	− 0.23	1.00		5	1	1	29	sw.	Milton St. John.
Moira	Franklin	200	9	20.9	+ 1.8	40	14	−10	29	23	1.73	− 1.40	0.32	10.0	13	1	7	23	w.	C. E. McBride.
Nehasane	Hamilton	1,750	1	17.6		39	5	−22	31	36	6.06		1.00	66.0	18	8	6	17	w.	A. C. Heyburn.
North Hammond	St. Lawrence	300	20																	
North Lake	Herkimer	1,822	8																	H. A. Paulls.
Ogdensburg	St. Lawrence	175	17	22.4	+ 0.5	38	14	− 2	30	18	1.85	− 0.59	1.10	1.6	8	3	17	11	w.	State Hospital.
Old Forge	Herkimer	1,733	1	18.8		45	5	−25	31	44	4.70		0.82	47.0	20	3	7	21	w.	Stuart W. Nelson.
Oswego	Oswego	335	39	26.1	− 3.1	45	6	− 1	31	21	5.16	+ 1.57	1.31	42.1	19	1	2	28	sw.	U. S. Weather Bureau.
Otto	Cattaraugus	1,410	5	24.3		59	4†	− 4	29	31	0.81		0.44		10	9	4	18		
Palermo	Oswego	460	50								6.23	+ 2.52	2.40	62.3	15	5	4	22	sw.	E. B. Bartlett.
Perry City	Schuyler	1,038	19	24.7	− 0.9	43	3†	− 2	31	28	1.85	− 0.91	0.62	12.4	12	2	3	26	nw.	W. H. Jeffers.
Philadelphia	Jefferson	485	3	21.4		44	1†	−20	30	29	4.05		1.05	35.5	18	1	15	15	w.	E. D. Babcock.
Plattsburg	Clinton	170	50	22.2	− 0.4	44	7	− 4	30	23	1.76	− 0.23	1.50		8	6	14	11	nw.	T. P. Davison.
Potsdam	St. Lawrence	300	33	20.2	− 2.0	40	8	−12	30	26	1.34	− 0.65	0.37	11.0	11	5	4	22	sw	Lloyd W. Weed.
Raquette Lake	Hamilton		1	21.0		39	3†	−13	31	25	3.33		0.80	36.5	11	4	2	25	nw.	R. J. Dunning.
Rochester	Monroe	523	80	26.1	− 2.8	47	6	5	29	20	1.72	− 1.16	0.63	14.6	17	0	8	23	w.	U. S. Weather Bureau.
Romulus	Seneca	719	17	26.7	− 2.3	42	1†	2	30	18	1.70	− 0.52	0.80	16.3	6	4	7	20		
Scottsville	Monroe																			F. Budlong.
Shortsville	Ontario	740	10	25.2	− 2.1	47	6	1	29†	21	0.96	− 1.00	0.31	4.8	9	6	10	15	w.	C. H. Latting.
Skaneateles	Onondaga		9								2.66	− 0.55	0.45		22					Edward Conson.
Syracuse	do	597	7	24.9	− 3.4	48	6	− 3	30	20	1.76	− 0.89	0.55	17.1	17	2	6	23	sw.	U. S. Weather Bureau.
Ticonderoga	Essex	344	11	23.9	− 0.6	46	6	−15	30	26	1.11	− 1.47	0.40	9.5	4	16	4	11	n.	Eva M. De Lano.
Trudeau	do	1,620	16	23.8	+ 4.5	55	6	− 3	28	30	2.14	− 0.38	0.87	12.8	13	3	3	25		
Volusia	Chautauqua	1,167	10	24.8	− 1.7	55	5	3	29	28	3.63	+ 0.34	0.82	31.0	15	3	6	22	sw.	Benjamin Breads.
Watertown	Jefferson	737	16	22.5	− 1.0	47	6	−10	30	22	3.58	+ 0.13	0.49	35.0	18	3	5	23	sw.	H. P. Dunlap.
Wedgwood	Schuyler	1,430	20	23.2	− 2.9	42	6	− 2	29†	19	2.05	− 0.69	0.50	13.5	12	3	10	18	sw.	O. F. Corwin.
Westfield	Chautauqua	837	13	25.4*	− 3.4	56*	5	5*	29	27*	3.46	+ 0.71	0.40	28.0	18					John R. Rogers.
Youngstown	Niagara		7								1.78		0.60	3.0	5	3	20	8	sw.	B. V. Brookins.
Vermont.																				
Burlington	Chittenden	404	3	21.2	− 1.3	42	6	− 8	30	23	1.53	− 0.16	0.56	14.3	17	4	4	23	nw.	U. S. Weather Bureau.
Cornwall	Addison	507	17	23.0		45	6	− 8	30	26	1.27	− 0.99	0.41	8.0	10	6	10	15	n.	C. H. Lane.
Enosburg Falls	Franklin	601	19	19.6	− 2.7	40	6	−18	30	30	1.51	− 1.46	0.60	18.0	12	3	4	24	nw.	L. H. Pomeroy.
Northfield	Washington	876	24	18.5	− 2.0	43	6	−16	30	30	1.58	− 1.13	1.11	16.5	14	2	6	23	n.	U. S. Weather Bureau.
Wells	Rutland	750	18	20.0		36	6†	−12	30	22	1.92		0.58	8.0	5	6	15	10	sw.	E. R. Pember.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record

TABLE 2.—*Daily precipitation for December, 1909. District No. 4, Lake Region.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Minnesota.																																	
Duluth	Lake		.24	.01	.05	1.18			T.			T.	.04	T.	.02	T.	.09	T.		T.	.10	T.		T.	.05	T.	T.	.03			.02		1.83
Floodwood	do																				.03		.01	.03	.03			.05			.01		1.33
Mt. Iron	do	.06	.13	.02	.01	.85							.02	.06			.02								.02			.03			.04		1.24
Stephen's Mine	do	.01	.07		.06	.87	T.		.06				T.		T.	.02	*	*	.01	T.	.02	.02			.02	.01	T.	.03			.07		3.08
Two Harbors	do		.55		T.	1.85						.10	T.	.15			.10			T.	.10				.07			.09			.07		
Wisconsin.																																	
Appleton	Fox		.11	.03	.06	.51	.02	T.	T.	T.			.95	.50	.05	T.	.05	.14			T.	T.		T.	.12	.24	.07	T.	T.		T.		2.85
Ashland	Lake		.05		T.	.55	T.		T.				.06	.14		T.	T.	.03		.04	.03				T.	T.	T.	.04	T.				0.94
Cecil	Fox		.04	.08		.61	.04		T.	T.			.43	.28	T.	T.	.09	.17				T.			.03	T.	T.	.05	T.				1.82
Chilton	Lake		.02	.02	.10	.62		.05					1.15	.50	.20	.05	.05	.30		T.	.10	T.		T.	.20	.20	T.	T.					3.57
Crandon	Fox					.50	.05						.15	.10	T.		T.	.20				T.			.20						T.		1.20
Florence	Menominee					.69							*	*	.53		T.	T.										21	T.				1.43
Fond du Lac	Fox		.15	.05		.62			.05				.67	.44	.06	.03	.03	.10	T.	T.	T.	T.	T.	T.	.08	.19	.03	.05	.04				2.59
Grand River Locks	do		.08	T.	.12	.70							.34	.14	T.	T.	.12	T.				T.		T.	.12	.06	.06	T.	T.				1.74
Green Bay	Lake		.08	.05	T.	.49		.01	.01	T.		.05	.51	.48	T.		.09	.07		T.	.01				.08	.09	.03	.02	.03		T.		2.10
Herbster	do																																
Iron River	do		.20		.05	.90			.10				.10				.10				.10							.10	.10				1.75
Kewaunee	do			.50	.10	.80		.06	T.				.45	.85			.24	T.			T.					.45			.35		.10		3.90
Manitowoc	do		.05	.10		.93		.12					.96	.05	.38		.10				T.				.31		T.	.20		T.			3.20
Menasha	Fox			.28		.49							*	1.65	T.		*	.13			T.				*	.18	T.						2.73
Menominee Falls	Lake				.30	1.41		.08				T.	1.00	.37	T.	T.	.60	T.			T.				.02	.26		.09					4.13
Milwaukee	do		.06	.14	.31	.65	T.	.25	T.	T.		.20	.53	.22	.01	.02	.14	T.	T.		.01			T.	.20	.38	.10	.02	.01				3.34
New London	Fox		.40			.70			T.				1.00				*	.05							T.	T.	.05	.10	.05				2.35
Oconto	Lake		.08	.08		.83		T.				.60	.40	.40	.10		.30	.15						20							.10		3.24
Oshkosh	Fox		.45	.05		.40	T.	T.					.90	.80			T.	T.			T.				T.	T.	T.						2.60
Pine River	do		.34			.71		T.	T.	T.		T.	.62	.13	T.	T.	.10	.06	T.	T.	T.	T.	T.	T.	.05	.23	.02	.02	.01		T.		2.29
Plum Island	Lake				.04	.87	.09	.25					.29	.32			.09	1.18								.08					.06		3.27
Port Washington	do	.02			.25	1.20		.20					1.20	.95			.30									.40		.20	.30				5.02
Racine	do		.10	T.	.03	1.03	T.	.21				.04	.72	.57	.03	.01	.03	T.			T.	T.		T.	.01	.56		.13	.03	T.			3.50
Sheboygan	do		T.	T.	.29	1.19	.05	.10					1.20	.42	.10		.20	.30	T.			T.			T.	.30	T.	T.	.50				4.65
Sturgeon Bay	do			.02		.83	T.	.04	T.				1.64	1.05	T.	T.	.31	T.			T.				T.	.09			.10	.09	.11		4.28
Superior	do	T.	.15	.02	.07	1.80	.21		T.	T.			T.	.02*		T.	T.	.01			T.	.05			.01				T.	T.			2.34
Waupaca	Fox		.35		.09	.81								.59			.14								.22								2.20
Illinois.																																	
Chicago	Lake	.01	.13		.20	.50	T.	.55			.06	.14	.84	.59	.02	T.	.04				.03	.04	T.		.24	.50	.15	.01	.13		T.		4.18
Indiana.																																	
Auburn	Maumee					T.	.05	.18	.22			.07	.30	.85	.20		T.					T.	T.	T.		.60	.26	.08	.05		.01			2.87
Elkhart	St. Joseph			.12		.06	T.	.30		T.			T.	1.08	.02	T.	T.	T.				.12	.05		T.	.50	.20	.12	.10	.10	T.			2.77
Fort Wayne	Maumee		.03			.11		.17			T.	.06	.58	.95	T.	T.	.01					.01	.01		*	.62	.16	.03	T.					2.74
Hammond	Lake		.10			.12	.22	.34					.36												.20	.55	.10	.10					2.15
Lima	St. Joseph							T.	.40					1.20											.60	.20	.10	.10					2.60
South Bend	do			.05		.02	.35	.20	.37			.04	.25	.52	.33	.09	T.	T.				T.		T.		.40	.38	.09	.09	.18	.04			3.40
Michigan.																																	
Adrian	Raisin					.18		.20						1.75								.10			.20	.60	.05						3.08
Agricultural College	Grand					.02		.50	.65	.05	T.		.70	.60	.05	T.	.10		.10	.02	.10	.10				.50		.02					2.91
Allegan	Kalamazoo			T.	.18	.41		1.10	.40	.50			.31	.64	T.	.20	.10	.80	.40	.30	.20	.60	.10			.50		.20	.70	.10	T.			7.74
Alma	Saginaw				T.	.17	T.	.69	T.	T.	T.		1.53	.66	T.	T.	.18	.21	.17	.06	.08	T.	T.			.42	T.		T.		T.			4.17
Alpena	Lake				.01	.21	T.	.90	T.	T.	T.	T.	.56	.63	.03	.06	.06	.13	T.	T.	T.	.03	.07		T.	.16	.03	.01	.02	.06	.02	.01		3.00
Ann Arbor	Huron				.01	.12	.11			T.	.01		.33	.79	.02	T.	T.	T.						T.	.01	.26			.15				1.81
Arbela	Saginaw						.30	.67	.13	T.	T.		.14	.61	.07		.26	.34	.13	.06	T.	T.	.13			.54	.13		.13			.14		3.78
Ball Mountain	Clinton									.15	.10			.10	.30			.40											.20	.10			1.35
Baraga	Lake																																
Battle Creek	Kalamazoo			T.	.08	.08		.27	T.	T.			.70	.48	T.	T.	T.	.10	T.	T.	T.		T.		T.	.52		.10	.06				2.39
Bay City	Saginaw					.50		1.20					.60	1.20	.15	T.	.15	.30		T.	T.	T.	T.			1.20	T.	T.	.30		.30		5.90
Benzonia	Betsey's																																5.19
Bergland	Ontonagon	.22			.13			T.	.23				T.	.05	T.	.16	T.	.20		T.	.13	T.				.18	T.	.06	T.	.18				1.54
Berlin	Clinton				.18		.03	.03					.24	.88	.05	.02	.04	.03	T.	.05	T.	.01	.04	T.	T.	.30	.13		.05		T.	.08		2.14
Big Rapids	Muskegon				.17	.50	.05	1.00	T.	T.			.50	.70	.30	.20	.10	.20	T.	T.	.10	T.	T.		T.	.20	T.	T.	T.					4.22
Blaney	Manistique					.95	.01		.01	.10			.50	.70	.10			.30																2.67
Bloomingdale	Lake		T.		T.	.40		1.00	.60	.50	T.		.15	.59	T.	.10	T.	.10	.10	.30	.20	.40	T.	T.	T.	.10	T.	.10	.30	.20	T.		5.14
Cadillac	Manistee				.15	.05	.45	.19			.08		.55	.30	.06	.04	.08	.14	.02		.02					.22	.01				.11		2.47
Calumet	Lake					.82	.55	.40	.12	.12		T.	T.	.16	.08	.40	.12	.08	.12	.28	.36	.16			.08	.06	.24	.08	.06	.20	.04		4.53
Cassopolis	St. Joseph						.40							T.				T.	.10				T.	T.	T.	.60	T.	.40	.20	.30			2.60
Charlevoix	Lake					.08		.20	.70				.60	.04	.10	.10	.05	.10				1.80					.20				.40		4.37
Charlotte	Kalamazoo				T.	.03		.13		T.			.70	.39																			1.70
Chatham	Lake					.56	.32	.28	.16	.06	.04		.22	.21	.19	.23		.18			.04	.01	.02		.08	.22	.27	.28	.24	.07	.04		3.72
Cheboygan	Cheboygan				T.	T.		.42	.15	.15	T.			.65	T.	T.	T.	T.	.10	.50	T.	T.	.65	T.	T.	T.	T.	T.			.10		2.12
Clinton	Raisin					.05		.35					.42	.65		T.	T.					T.			.55		.09	T.					2.11
Coldwater	St. Joseph						.20	.45					.55	.68	.62	T.						T.	T.		.60		.10	.06					2.66
Concord	Kalamazoo				T.	T.	T.	.15	.75					.65	.15										.68								2.38
Croton	Muskegon				.11	.41	.12	.50	T.		.10		.40	.46	.04	.10	.30	.20	.30	T.	.10	T.	T.			.10	T.	.10	.10		T.			3.44
Deer Park	Lake	T.				.20		T.	.80	.60			.20	T.	.50		T.	T.	.20	.30					.30		.40		.15	.30			3.95
Detour	St. Mary's																																
Detroit	Detroit				T.	.12	.01	.36	.01	T.	T.	T.	.51	.79	.09	.05	T.	T.	.01	.01	T.	T.	.01	T.	.15	.36	.06	.02	.02		.01	T.		2.57
Durand	Saginaw					T.	.19	.16	T.	T.	T.		.19	.76	T.	.04	T.		T.	T.	T.	T.	T.			.25	T.	T.	.05					1.64
Eagle Harbor	Lake				T.	.80	.58	.08	.07	.20	T.	T.	.03	.04	.08	T.	.06	.15	.06	.10	.18	.08		.03		.10	T.	T.	.30	.05	.02			3.01
East Tawas	do																																
Eloise	Rouge																																
Escanaba	Lake			T.	.04	1.47		.04	T.	T.	T.		.62	1.02	.06	T.	.08	.03	T.	.03	.02		T.		T.	.05	T.	T.	.04	.01	.06		3.57
Ewen	Ontonagon								.10	.20	T.	.10	.05	.10	.10	.20	T.	.30	.30	.20	.20	.20	.10	.10	.10	.10		.10	.10	'10			2.75
Flint	Saginaw				.03	.15	.05	.25					.20	.50	.05		.05		.03							.35							1.66
Frankfort	Betsey's					.30	.10	.40	.40	.20	.10		.50	.80	.20	.10	.10	.60	.10	.50	.40	.10				.20	.20	.10	.20	.30	.40			6.30
Ganges	Lake			.06	.04	.47		.36	.13	.08	.09	1.00	.67	.65	.07	.06	.12	.08	.07	.07	.12	.10	T.		T.	.15	.20	.20	.30	.40			5.49
Gaylord	Cheboygan																																
Gladwin	Saginaw				.15	.25	.20	1.05					.60	T.				.30			.20					.30				.20			3.25
Grand Haven	Grand	.03	.02	.12	.39	T.	.55	.19	.15	T.	T.		.68	.43	.03	.06	.20	.11	.10	.10	.16	.05	.01	T.	.07	.24	.06	.21	.12	.20	.01	T.	4.29
Grand Marais	Lake																																
Grand Rapids	Grand	T.	T.	.02	.17		.46	.07	.03	T.	T.		.76	.51	.05	.04	.07	.16	.11	.04	.09	.03	T.	T.	.05	.18	.02	.09	.15		T.		3.10
Grape	Raisin					.12		.32					.34	.71	T.	T.	T.					T.	T.		T.	.50	T.	.04	.02	.01		T.		2.06
Grass Lake	Grand					.09		.25			T.		.16	.40	.06	T.	T.	.09	T.	T.	T.	T.	.10		.66	.40	T.	T.	T.	.18	T.			2.39
Grayling	Au Sable					.10	1.00	.30	.20	.30	T.	.10	.20	.10	.15	.10	.15	.10	.05	T.	.05	.10	.08	.05	.05	T.	.08	T.	.10	.50	T.	T.		3.86
Harbor Beach	Lake							.30	.50	.20			.30	.80									.20			.30	.10	.10	.40	.20				3.40
Harrison	Saginaw							1.20					.80	.50				.30								.30								3.10
Harrisville	Lake					.08		1.20	.10				.80	.50	.14	.10		.30				.15	.10			.30	.10	.10	.20	.05	.10	.30		4.62
Hart	Pentwater					.43		.40	.40	.10			.40	.20	.10	.10	.20	.10	.20	.20	.10				T.	.40								3.33
Hayes	Pigeon							.60					.30					.30	.20							.20	.10		.40					2.10
Highland	Huron					.15		.30	.05	.01	T.	T.	.40	.80	T.	T.	T.	T.	T.	T.	T.	T.	T.			.50	T.	.10	T.		T.	T.			2.31
Hillsdale	St. Joseph		T.			.15		.46		T.		T.	.50	.45	.05	.04		T.	T.			.03	T.			.38	.03	.10	.04					2.23
Holland	Lake		.08	.04	.40	T.	.90	.30	.20	T.			.31	.75	T.	.10	.20	.30	.20	.30	.20	.30	T.		.05	.20	.15	.40	.30	.20	.10	T.		5.98
Houghton	do	.02			T.	.58	.12	.10	.37	.09		T.	.13	.10	.06	.10	.01	.06	.06	.25	.16	.08			.02	.02	.04	.02	.12	.09	.01			2.61
Howell	Saginaw					.10		.25		T.			.30	.55	.05	T.	T.	T.	T		T	T				.60		.05						1.90
Humboldt	Escanaba																																
Iron Mountain	Menominee					.72	.11						.24	.29																	.20			1.56
Iron River	do				T.	.90	.20	T.	T.	T.			T.	.60	T.		T.	.20			T.				T.	T.			T.		.10			2.00

TABLE 2.—*Daily precipitation for December, 1909. District No. 4*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Michigan—Cont'd.																																	
Ironwood	Lake		T.			.02	T.		T.	T.	T.		.10	.20	.20		.20	.61		T.	T.	.40	.10			.50	.10	T.	T.				2.43
Ishpeming	Escanaba	.05			T.	.60	.02	.02	.01	T.	.01	T.	.10	.50	.30			.30			.02		T.			.05			.10	.05	.02		2.15
Isle Royale	Lake																																
Ivan	Manistee				T.	.10	.28	.30	T.		.08	.12		.30	.20	.04	.04	.02	.10	.15	T.	.14		.10		T.	.15	.20	.15	.15	T.	.20		2.82
Jackson	Grand																																
Jeddo	St. Clair					.25	.05	.20	.10	T.			.20	.30	.02	.10	.05	.25	.02	T.	.02	.02	T.			.40	.20	.05	.02	.40	.05	.20	2.90
Kalamazoo	Kalamazoo			.05	.03	.20		.60	.10	.10			.23	.75	.05	.10		.50	.05	T.		.05			.20	.55		.10					3.66
Lansing	Grand				T.	.12		.55	.05	.01			.60	.64	.08	.03	.03	.02	.04	T.	.02	.02	T.		.02	.50	T.	.10	.05		T.		2.88
Lapeer	Saginaw																																
Ludington	Pere Marquette				T.		.27	.40	.20					.57				.20											.10	.20			1.94
Mackinac Island	Lake																																
Mackinaw	...do				T.	T.	.10	.20	.10	.05			.20		.05		.05				.20				.02		.05			.05		1.07
Mancelona	...do					T.	T.	.40	.60	.70	.40		.40	T.	.10	.20		.20	.10	T.	T.	.10	T.			.10	T.	.10			T.	T.	3.40
Manistee	Manistee				T.	.60	T.	.60	.20	T.	T.		.20	.90	.15	T.	T.	.20	T.	.10	.10	T.	T.			.10	.20	T.	.20	.30	T.		3.85
Maple Ridge	Lake				.08	.85	.40						.30	.70	.30			.20								.20			.10	.20			3.31
Marquette	...do				T.	.23	.03	T.	T.	.02		.01	.19	.49	.27	T.	.24	.45	T.	T.	.02	T.			.06	.28	.05	.32	.61	.14	.03		3.42
Menominee	Menominee		T.	T.		.60		T.					1.15	.30		.20					T.					.15		T.	T.		T.		2.40
Midland	Saginaw					T.	.08	.05	.06	T.	T.		.80	.95	T.	T.	.01	.02		T.	T.	T.			T.	.02	T.				T.		1.99
Montague	White											T.	.60	.08								.06				.62		.07	.02			2.79
Morenci	Maumee					.28		.46					.50	1.05			T.									.40	T.	T.		T.	.02	T.	2.67
Mt. Clemens	Clinton				.30	.15		.25	T.																							2.16
Mt. Pleasant	Saginaw						.02	.80					1.00	.19			.10		.05							.10	T.	.10	.40	T.	.10		3.55
Muskegon	Muskegon				T.	.25		.60	.60	T.	T.		.10	.30	T.	T.	.10	.10	.10	.10	.30	.30				.10	T.	.10	.40	T.	.10		3.55
Newberry	Taquemenon																																
Old Mission	Lake					.39	.02	.42	.10	.13	.08		.52	.48	.18	.10	.04	.20	0.4		.10	.15	.45			.20	.10	1.10	.07	.15	.02		5.04
Olivet	Kalamazoo				.11	.18		.38		.02	T.		.52	.61	.02	.05	.05				.03				.08	.46		.15					2.66
Omer	Lake							.80		T.			1.00	1.50												T.	.60				.10		4.00
Onaway	Cheboygan																														.05		2.80
Ovid	Grand					.60			.80	.20			.60			.10	.15	.10	.05	.15													
Owosso	Saginaw				.01			.60	.20	.10			.10	.70	T.	.10	.20	.20	.20	.10		T.	T.			.50	.10						3.11
Petoskey	Lake				.15	T.	.21	.50	.60	.60	.10		.60	.60	T.	.40	.30	.20	.20	.40	.30								T.	T.	.10		5.26
Plymouth	Rouge							.20	T.	T.				.50	.10	T.	T.									T.	.32						1.12
Pontiac	Clinton				.05	.06	.10	.40		T.			.60	1.20	T.	.05	T.			T.	T.	T.	T.			.73	T.	.02	T.				3.21
Port Austin	Lake																																
Port Huron	St. Clair					.16		.13	.01	T.	T.		.25	.36	.01	.02	.02	.02	T.	T.	.01	T.	T.	T.	.01	.35	.07	.03	.33		.08	T.	1.86
Powers	Lake					T.								.60					.20		.10					.20	.10						1.20
Reed City	Muskegon				T.	T.	.02	.10	.70	.10	T.	T.	.20	T.	.05	.10	.05	.50	T.		.10	T.	T.			.30		.05	.05		.05		2.37
Roscommon	Au Sable					.10	T.	1.00	T.		.05		.70	.20				.17	T.							.20	.08		.09		.20		2.79
Saginaw	Saginaw					.20	.20	.60	.05	T.	T.		.20	1.40	.20	.05	.25	.15	.10	T.	T.	T.	T.	.03	T.	T.	.50	T.	T.	.20	.20	.10	.20	4.65
Saginaw, W. S.	...do				T.	.33	T.	.55	.01	T.			.44	.72	.13	.01	.11	.10	.05	.01	.01	.02	.02		T.	.36	.02	.05	.11		.02	.04	3.11
St. Ignace	Lake				.08		.35	.30	.08		.05		.05	1.05	.05			.04			.15	.05								.06		2.31
St. James	...do																																
St. Johns	Grand																																
St. Joseph	St. Joseph	.30	.40			.12		.43	T.	T.			.75	.30		T.	T.	T.	.80	.30	T.	.20			T.	.20	.20	.20	.20	.20	.10		4.70
Sandusky	Lake						.08	.40	.20					1.40	.05	.10		.20				.20				.40		T.		T.	.10	3.13
Saranac	Grand					.05		.50		.03			.50	1.00	.15		.10	.20	.02		.02	.02				.27		.02	.04				2.92
Sault Ste. Marie	St. Mary's				.03	.58	.62	.23	.14	.13			.08	.29	.11	.03	T.	.01	.11	.01	.02	T.		.03	.02		.01	T.			.06	T.	1.91
South Haven	Lake																																3.35
Stanton	Grand				.20		.20	.70					.40	.60	T.	T.	T.	T.	T.	.60	.10	.10	.05	.05	.05	.05	.05	.05	.20				
Thomaston	Lake	T.				.69			.20	.20				.10			.10	.90	.10		.10					.20			.10				2.69
Thornville	Saginaw					.20		.60					.50	.40		.10	.20	.10				T.	T.			.40	.30		.10		T.	.20	3.10
Traverse City	Lake					.20					.30	.30	.20	T.	.30			.20	.20	.20					.10	.20	.30	.20	.20				2.90
Vassar	Saginaw																																
Victoria	Ontonagon	.01				.16	T.		.10	.26			T.	.04	.10	.04	T.	.14	.02	.02	.03	.03	.06		.02	.04	.03	.06	.11	.10	.01		1.38
Wasepi	St. Joseph		.04			.20		.40					.70	.44	T.	.05						.10	.05			.10	.50		.15	T.			2.73
Watersmeet	Ontonagon	T.				.30	.07		.02	T.			.02	.14	.05	.02	T.	.10	T.	.05	.02	.05	.01		T.	.03	.01	.01	.08	.01	.03		1.02
Webberville	Grand					.15	.07	.60	.10	.02			.16	1.12		.02	T.	T.			T.	.02			.05	.30	.10	.10	T.			T.	2.81
West Branch	Lake		T.				.10	.80					1.00	T.	T.										.20							2.10
Wetmore	...do					.20		.40	.30	.30			.20	.30	.30	.50		.50	.30		.10						.30	.40	.20	.20				4.50
Whitefish Point	...do	T.			T.	.06	.40	.20	.90	.40				.40	.60	.48	T.	.04		.70	1.34	T.		.03		.03	.01	.06	T.	T.	.01	T.	5.66
Woodlawn	Au Sable				.02		.10	.71	.20	T.	T.		.50	.44	.05	.20		.20	.10	T.	.10					.20	.10	.10			.25	.05	3.32
Ypsilanti	Huron					.15		.37					.50	.82	.05	.03										.70	.02	.02					2.66
Ohio.																																	
Akron[1]	Lake			*	T.	T.	T.	.16	T.	T.	T.	T.	.10	.18	.65	.03	T.	T.	T.		T.	*	T.	T.	T.	.60	.30	.07	.07	.13			2.29
Benton Ridge	Maumee					.10	.05				T.	.05		.64	.05		T.					.10				.50	.05	.25	.10				2.39
Bowling Green	Lake					.24		.24			T.		.25	.90								T.				.50	.10	.10	.10	.10			2.53
Bucyrus[1]	Sandusky					.05	.03	.10		.20		.20	.08	1.10	T.					T.		.05				.60	.30	.20	T.	T.			3.36
Cleveland (1)	Lake				T.	.01		.07	T.	T.	T.	T.	.22	.31	.11	.05	.03	.02	.04	.01	.01	.09	.03	T.	.16	.48	.05	.07	.17	.07	.05		2.05
Cleveland (2)	...do				T.	T.		.12					.06	.31	.01	.08	.05		T.	T.	.03	.02	.25		.05	.23	.04	.12	.05	.30	.04		2.12
Defiance[1]	Maumee					.12		.13		T.	.05	.01	.42	.39	.02	T.	T.			T.		T.	T.			.34	.01	.13	.04		T.	T.	1.66
Findlay	...do						.10	.05		T.	T.	T.		1.07								T.					.60		.20				2.02
Fremont	Sandusky							T.		T.				1.13	T.							T.				.72	T.	.02	.28				2.15
Hedges	Maumee					.27			.10		T.	T.	.78	.62	T.							.20	.10			.60	.10	.30	.10				3.17
Hillhouse	Lake						T.	.10		.06	.10		T.	.25	.29	.27	.05	T.	.05	T.	T.	T.	.10	T.		.27	.20	.05	T.	.20	.02	T.	2.01
Hiram	...do						T.	.20		T.			.11	.72	.05	T.	T.	T.				.02	.06	.01		.27	.17	.08	.05	.10	.01	T.	1.85
Hudson	...do							.25						.93												.50	.20	.20		.30			2.58
Lima	Maumee					.32		.38			T.	.30	.57	.68	T.		T.					.10	T.			.80	T.	.30	.20				3.55
Medina	Lake							.21				T.	.29	.68	T.	T.						T.	T.			.60	.24		.07	.12			2.21
Montpelier	Maumee	.05		.02	.12			.40			.20	.10	1.00	.60	T.	T.	T.		T.	T.		.20	.10			1.10	.10	.30	.10				4.39
Napoleon	...do				.12			.05				T.	.80	.71	T.	T.	T.		T.			.05				.80	.05	.05	.05				2.68
New Bremen	...do	T.			.02			.20				.20	.43	.47	T.	T.						.02	.02			.50	T.	.02	.01	T.			1.89
North Royalton	Lake						.05	.05						.69	.10	T.							.20			.60	.20		.10	.40			2.39
Norwalk[1]	...do						.06	.12			T.	.40	.55	T.	T.	T.			.02		T.				.45	.24		.06		T.		1.90
Oberlin	...do					T.		.33		T.		T.		.68	.06	.04	.02					T.	.01			.58	.18	.06	.09	.13			2.18
Ottawa	Maumee	T.				.15		T.			T.	.30	.80	.40	T.	T.		T.				.04	T.		T.	.45	.04	.04	.09				2.31
Rocky Ridge	Lake																																
Rome	...do								T.	T.	T.			.91	.10	.20										.40				.30			2.81
Sandusky	...do				T.	.05		.04		T.	T.	.14	.53	.44	.02	.01	T.	T.	T.		T.	.02	T.		.17	.50	.40						2.23
Tiffin	Sandusky			T.	T.	.18		.15	T.	T.	T.	.01	.22	.92	T.	T.	.02	T.	T.			.01	T.		T.	.58	T.	.05	.17	.01	T.		2.81
Toledo (1)	Lake				.01	.16		.31		T.	.01	.08	.69	.53	T.	T.	.01	T.	T.	T.	T.	.04	T.		.24	.70	.20	.20	.05	.15			3.05
Toledo (2)	...do			T.	.01	.34		.16	T.		.01	T.	.49	.76	.05	T.	.01	T.	T.		T.	.02	T.	T.	.05	.88	T.	.04	.05	T.			2.60
Upper Sandusky	Sandusky					.13		.20		T.	T.	.20	.07	.75	T.	T.	.10	T.	T.			.05	.15			.60	.20	.20	.05	.10			2.80
Vickery	Lake				T.	.13		.16			T.	.04	.45	.70	T.	.02	.02	T.				.01				.67	.06	.08	.05	.03			2.42
Wauseon[1]	Maumee					.19		.33		.01	.02	T.	.87	.52	T.	.01	.02		T.	T.		.08			.11	.81	T.	.13	.02	T.			3.06
Wellington	Lake					.03		.12				T.		.75								.03	T.			.36	.12	.14	.04				1.59
Willoughby	...do																																
Pennsylvania.																																	
Erie	Lake					.02		.07	.11	.13	.06		.02	.20	.06	.12	.03	.13	.27	.01	T.	.03	.05	T.	T.	.20	.15	.07	.05	.06	.01	T.	1.85
New York.																																	
Adams Center	Ontario				T.		T.	.37	.81	.80	.10	T.	T.	.32	.38	.43	1.52	.15	1.11	.20	.75	.60	.25	.16	T.	.20	.40	.20	.24	.24	T.	.30	9.53
Angelica	Genesee							.07		T.	T.	.03	T.	.29	.10	.13	.01	.01	.02				.05	.04		.04	.35	.01	.01	T.	.03	T.	1.19
Appleton	Ontario						.02	.10			T.		T.	1.09	.36	T.	T.		T.			.06	.07			.06	T.	.12	.02	.10		.07	2.07
Auburn	Oswego							.03	T.		.09			.14	.40		.06	.06	.09			T.	.22	.02		.18	.52	.08		.06	.08		2.03
Avon	Genesee						T.	.12	T.		T.	T.	T.	T.	.44	.05	T.	T.	.36	T.		T.	T.	.05		.10	.06	T.	T.	T.	T.	T.	1.48

TABLE 2.—*Daily precipitation for December, 1909. District No. 4*—Continued.

Stations.	River basins.	Day of month.																													Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
New York—Cont'd.																																	
Benson Mines	St. Lawrence							.20	T.	T.	T.	T.	*	1.20	.20	.20	.10	.20	.10	.20	T.	.05	.05	.10	T.	.20	.10	.20	.05	.10	.05		3.30
Blue Mountain Lake	do					.02		.26	.05	.03	T.	T.		.92	.26	.04		T.	.03			T.	.04			.15	.25	.03		.02	.08		2.18
Brockport	Ontario			T.		T.	.01	.32	.11	.04	T.	.02	.09	1.16	.35	.01	T.	.15	.06	T.	.18	.08	.02	T.	T.	.14	.06	.59	.20	.06	.43	.12	4.20
Buffalo	Erie			T.		T.		.33	.01	.06	T.	.01	T.	.25	.13	.14	.02	.03	.11	T.	T.	T.	.06	.01	.02	.05	.02	.02	.01	.01	T.	T.	1.29
Canton	St. Lawrence							.50	.10	.09				.48	.23				.13		.05					.15			.03	.02		.33	2.11
Cape Vincent	do							.15						.50	.45												.30						1.40
Carvers Falls	Champlain													.20	.20										T.	.05	.05	T.	T.	T.			0.50
Chazy	do							T.	.22	T.	T.			.10	.82	.12	.02	.06	T.	.10	T.		T.	T.	.10	.18	.21	.05	.03	T.	T.		2.00
Dannemora	do													.80	T.	T.	T.	T.	T.		T.	T.	.20			.20	.20	T.	T.	.10		T.	3.05
Elba	Ontario				T.			.65	.30	.30	.30			.80	T.	T.	T.	T.	T.		T.	T.	.20			.20	.20	T.	T.	.10		T.	3.05
Faust	St. Lawrence							.20	.42	.14	.02			.35	.21	.05	.03			.20			.07	.08		.10	.18	.01	T.				2.06
Fayetteville	Oswego			T.	.01			.12	.02	T.	.03	.01		.16	.28	T.	T.	T.	.08				.12	T.	.10	.12	.52	.05	T.	T.	T.		1.62
Gabriels	Champlain				T.			.07	.25	.05	.08	T.		.22	.07	.08	.05		.05	.05	.03	.01	.05	.08	.04	.05	.07	.04	.04	.06	.02	.01	1.47
Harkness	do								.05					.19	.60				.02								.10	.01	.01	.03			1.01
Hemlock Lake	Genesee																	T.	T.	T.								*	*	.33			0.33
Hunt	do							.04					.68					.10									.40		.10				1.32
Ithaca	Oswego				T.			.08	T.		T.	.01	T.	.52	T.	.13	.01	T.	.01	T.			.02	T.		.28	.13	T.	T.	.02	T.		1.21
Keene Valley	Champlain							.15	.05	T.	.05			.74	.40	T.		.04	T.	T.	T.	T.	.09	.02	T.	.04	.43	.09					2.10
Keuka Park	Oswego																																
King Ferry	do							.04			T.	.02		.14	.28	.02	.04						.02			.06	.22	.06	.08	.03			1.01
Lake George	Champlain							.31	.11					.86	1.29	T.		T.		T.				T.	T.	.09	.17			.03			2.86
Lake Placid Club	do				T.			.05	.55	.30	.15			.10	.05	.05	.05	T.	.30	.41	.11	.05	.10	.40	.10	T.	.85	T.	.05	T.	T.	T.	3.67
Le Roy	Genesee				T.			.12	.10	T.	.04	.04	.05	.43	.03	.25	.04	.16	.14	T.	T.	.03	.07	T.		.15	.24	.04	.03	.06	.06	T.	2.08
Lockport	Ontario							.14		T.	T.	T.		1.15	.62		T.	.02	.04			.02		T.		.11	.10		T.	.28	.04	.05	2.57
Lowville	do							.45	.05		.38			.80		.50		.25									.28						2.71
Lyndonville	do													1.00	.55												.11	.13	.05				1.84
Moira	St. Lawrence								.32	.10	.15	T.	T.	.27	.24	.20			.05		T.		.15	.05	.05	.05	.05		.05				1.73
Nehasane	Ontario				T.		T.	.02	.90	.91	1.00			.22	.37	.40	.19	.10	.40	.12	.40	.14	.26		T.		.21	.10	.10	.22			6.06
North Hammond	St. Lawrence																																
North Lake	Ontario					T.		.23		T.	T.	T.	T.	.35	1.10	T.	T.	T.	.06	T.	T.		.01	.03		.02	.05		T.				1.85
Ogdensburg	St Lawrence							.22	.21	.15	.82	.01		.76	.14	.30	.35		.26	.41	.16	.08	.20	.02		.13	.05	.08	.23	.12			4.70
Old Forge	Ontario				T.		T.	.24	.03	T.	.30	T.		.45	.33	.05	1.11	.10	.40	.02	T.	.01	1.31	T.		.21	.06	.27	.15	.07	.02	.02	5.16
Oswego	do							.03	.02		.03	T.	.09		.44				.04	T.		T.	.07	.04		.03	.02	T.					0.81
Otto	Erie				T.			T.	.04	.10	.50			.22	.16		.20	.20	.60	T.		.21	.40	T.	2.40	.60	.30	.10	.20	T.			6.23
Palermo	Oswego				T.			.10	T.			.03		.20	.31	.20		.03	.03					.03		.20	.62	.08	.02				1.85
Perry	do							.47	.19	.47		T.		.35	.48	.40	.07	.03	.07		1.05	.17	.03	.02		.06	.03	.02		.08		.06	4.05
Philadelphia	St. Lawrence				T.				T.	T.	.01		T.	T.	1.50	T.	T.		.01						T.	.01	T.	.09	.11	T.	.02	.01	T.	1.76
Plattsburg	Champlain							.02	T.	.37	.05	.05		.30	T.	.06	.12		.14				.08	T.		.07	.08						1.34
Potsdam	St. Lawrence	T.			T.	.01		.13	.02	.01	.02	.03	.08	.59	.03	T.	T.	.01	.05		T.	T.	.14	T.		.15	.26	.03	T.	.10	.06	T.	1.72
Raquette Lake	do								.06		T.	T.		.10	.08	T.		T.					T.	.20		.46	.80		T.	T.			1.70
Rochester	Genesee							.02	T.		.04	T.		.15	.31	.05		T.	T.	T.		T.	.05	.05		.10	.19		T.	T.			0.96
Romulus	Oswego							.07	.04	T.	T.	.05	.03	.18	.32	.05	.11	.06	.03	.04	.01	T.	.24	T.	.10	.24	.45	.30	.05	.19	.03	.02	2.66
Scottsville	Genesee													.39	.40								.02			T.	.30			T.			1.11
Shortsville	Oswego							.17		.32	.07	.04	.17	T.	T.	.02	.22	.30	.17		.05	T.	T.	.02	T.	.47		T.		T.	T.		2.14
Skaneateles	do							.13	.11	.06	.07	T.	T.	.41	.30	.19	.22	.08	.37	T.	T.	T.	.82	T.		.13	.14	.13	T.	.47		T.	3.63
Syracuse	do							.23	.06	.49	.65			.45	.22	.33	.06	.08	.28		.38	.23	.13	T.		.15	.02	.08		.30		.04	3.58
Ticonderoga	Champlain							.17	T.	T.	T.	T.	T.	.40	.44	.03		T.	T.	.03			.04	.03	T.	.50	.30	.06	.03	.02	T.		2.05
Trudeau	do							.21	.07		.12		.06	.39	.31	.06	.29	.12	.26	T.	T.		.40			.09	.37	.26	.06	.27		.06	3.46
Volusia	Erie							.53						.60	.52												T.	T.	.09	.04			1.78
Watertown	Ontario																																
Wedgwood	Oswego							.17	T.	T.	T.	T.	T.	.40	.44	.03		T.	T.	.03			.04	.03	T.	.50	.30	.06	.03	.02	T.		2.05
Westfield	Erie							.17	T.	T.	T.	T.	T.	.40	.44	.03		T.	T.	.03			.04	.03	T.	.50	.30	.06	.03	.02	T.		2.05
Youngstown	Ontario							.53						.60	.52												T.	T.	.09	.04			1.78
Vermont.																																	
Burlington	Champlain			T.	T.			.10	T.	T.	.01	T.	.01	.38	.23	.03	T.	.07	.09	T.			.10	.05	.05	.05	.29	.03	.01	.02	.01		1.53
Cornwall	do			T.	T.			.12						.40		.04		.09					.07		.06		.41		.06	.01	.01		1.27
Enosburg Falls	do				T.	T.		.29			.03	T.	T.	.02	.60	.05	.03	T.	.12	T.		.07	T.	.13	.09		.07	.01	T.		T.	T.	1.51
Northfield	do			T.				.22	.03		.01	T.	T.	.86	.25	.03	.02	T.	.01	.01		T.	.01	.01	.01	.03	.08		T.	T.	T.	T.	1.58
Wells	do							.43						.45	.58								.14				.32						1.92

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 4, Lake Region.*

Date.	Wisconsin.								Illinois.		Indiana.		Michigan.													
	Duluth, Minn.		Florence.		Green Bay.		Milwaukee.		Chicago, Ill.		Fort Wayne, Ind.		Alpena.		Battle Creek.		Cadillac.		Detroit.		Escanaba.		Ewen.		Houghton.		Marquette.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	42	38	48	31	50	34	46	40	51	41	54	24	42	29	50	24	49	27	50	36	45	39	54	38	47	39	47	36
2	40	37	44	32	46	38	44	42	49	44	45	32	44	28	46	32	40	30	47	36	47	39	50	33	42	38	44	36
3	39	37	42	34	43	38	48	42	53	44	46	37	41	23	43	35	37	30	36	30	44	36	45	34	46	37	44	34
4	38	28	44	36	42	36	46	42	53	47	57	43	39	33	52	36	42	33	45	30	43	39	47	35	44	37	49	39
5	38	6	44	20	48	14	51	15	55	19	63	36	46	26	58	28	50	40	59	25	45	14	43	31	46	16	48	19
6	8	− 4	21	8	19	9	22	13	31	18	36	20	30	21	29	20	51	18	32	22	24	13	36	7	21	12	27	12
7	5	− 7	11	− 4	16	5	21	5	32	6	33	16	31	22	28	18	22	20	35	13	16	11	7	4	17	12	16	11
8	7	− 6	16	− 2	14	2	10	2	9	3	16	0	23	14	18	1	20	6	13	2	20	14	17	0	21	10	22	− 6
9	7	−11	14	10	17	8	12	3	13	2	12	− 2	26	17	11	2	18	11	11	6	21	15	4	5	19	10	19	12
10	23	− 4	22	7	21	5	22	4	22	7	19	2	27	17	21	6	26	15	23	8	26	12	21	− 2	24	16	28	17
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12	27	24	23	18	31	26	38	30	39	31	37	19	32	26	34	24	25	19	38	26	24	22	29	− 3	29	27	26	20
13	29	18	31	19	32	25	39	30	39	29	42	32	38	32	38	31	34	24	42	32	32	23	25	10	31	25	32	25
14	20	10	30	20	30	20	31	20	33	25	32	28	36	26	32	26	34	25	32	29	28	24	31	16	27	22	27	22
15	17	7	23	15	25	11	24	10	29	11	31	22	31	25	29	22	26	22	30	23	28	17	24	12	27	16	25	15
16	15	2	17	3	15	− 1	28	3	34	8	29	10	31	20	24	12	23	15	28	17	21	6	24	9	23	13	24	11
17	9	− 7	20	11	20	9	18	1	17	3	33	12	28	23	23	13	26	15	31	14	27	12	21	10	23	14	26	14
18	9	− 2	15	9	9	− 4	8	− 1	11	− 1	16	2	27	11	17	5	25	14	18	10	19	6	10	6	17	13	19	9
19	9	− 6	14	5	9	0	8	− 1	13	2	13	3	25	13	11	5	15	9	14	7	19	5	12	6	19	14	18	10
20	15	6	17	1	10	0	8	− 3	15	4	22	5	21	14	14	7	15	11	18	12	16	4	15	9	22	12	21	10
21	22	11	22	5	17	0	16	7	18	11	19	15	20	13	16	11	20	8	20	15	22	3	30	8	27	11	29	9
22	22	10	25	11	25	6	24	14	26	12	25	13	29	19	20	12	25	10	30	12	29	22	25	16	30	23	30	24
23	17	11	26	11	21	9	16	11	24	12	27	12	32	27	27	19	25	20	30	22	31	12	23	12	29	18	30	15
24	19	14	27	8	19	8	28	11	28	18	26	17	27	22	22	14	22	18	23	18	25	10	20	10	28	18	28	10
25	17	2	26	18	30	17	29	22	31	23	27	25	31	23	27	20	26	17	31	21	31	20	25	12	28	17	31	19
26	6	− 7	20	11	23	4	22	7	23	8	27	12	27	19	26	14	26	15	32	16	22	11	20	10	18	13	21	13
27	6	− 5	16	8	15	0	14	6	18	8	27	10	25	10	23	8	22	11	24	11	18	8	18	9	15	10	16	12
28	3	−10	15	− 2	15	6	14	4	16	8	23	10	15	7	19	5	14	0	19	10	16	4	12	−10	13	4	15	7
29	0	−17	8	− 5	11	− 9	7	− 4	10	− 2	19	− 5	10	2	14	− 5	7	− 4	14	− 1	14	3	6	− 5	10	4	12	6
30	13	− 6	9	0	9	− 9	11	− 5	14	− 7	13	− 9	17	2	9	0	14	0	14	2	8	2	8	4	17	7	13	5
31	22	6	20	− 5	20	− 1	28	6	32	12	31	5	21	9	25	5	20	5	25	10	24	5	10	3	24	12	25	8
Mns	18.4	6.3	23.7	11.1	23.6	10.5	24.7	12.8	28.1	15.2	29.9	14.9	28.9	19.2	27.1	15.0	26.5	16.1	28.8	17.1	26.2	14.9	24.3	11.1	26.2	17.5	27.1	16.5

Date.	Michigan.						Ohio.								Pennsylvania.		New York.								Vermont.			
	Muskegon.		Saginaw, W. S.		Sault Ste. Marie		Cleveland.		Lima.		Sandusky.		Toledo.		Erie, Pa.		Buffalo.		Canton.		Rochester.		Syracuse.		Burlington.		Northfield.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	50	27	51	26	44	38	55	33	55	27	52	35	56	35	46	35	47	31	34	14	42	29	40	23	26	9	30	1
2	48	32	49	29	45	32	49	34	48	35	47	38	48	38	41	31	40	30	29	18	36	25	35	27	30	22	32	19
3	48	36	42	26	40	29	43	31	49	40	45	37	43	35	42	31	42	31	32	22	39	32	40	29	31	26	32	26
4	47	41	49	31	38	33	49	34	64	38	53	35	54	35	44	37	40	31	32	28	37	31	36	29	35	31	33	28
5	46	21	66	36	46	28	63	29	60	37	66	29	62	28	61	40	55	34	30	24	45	31	43	33	37	32	40	22
6	37	28	39	24	28	18	37	25	50	21	35	24	36	24	39	28	45	33	39	24	47	32	48	28	42	22	43	21
7	28	21	30	20	27	19	44	14	55	28	41	16	35	13	48	24	45	29	40	25	40	31	40	28	37	28	35	29
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11	27	18	29	18	23	9	31	22	25	20	28	20	28	19	28	24	29	22	16	8	27	22	26	16	18	10	18	0
12	28	20	31	24	23	11	38	26	40	20	41	27	40	26	34	25	30	20	19	1	28	20	22	10	20	8	18	1
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18	22	18	24	15	22	15	16	11	20	4	16	9	18	10	19	15	27	22	24	15	27	22	25	22	24	20	23	10
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20	18	12	19	12	22	12	23	11	21	7	22	12	22	11	20	14	23	14	21	18	21	15	22	16	26	20	30	12
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22	28	17	31	10	27	19	30	15	23	12	28	15	30	15	31	21	26	18	22	14	25	18	23	19	23	19	23	18
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24	25	18	26	20	28	24	27	17	20	15	25	16	24	15	27	24	28	27	24	21	30	27	31	26	23	18	21	5
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27	23	18	26	11	9	− 4	23	15	22	11	24	14	27	13	23	16	24	18	13	− 2	24	18	24	15	15	4	22	0
28	20	4	19	8	4	− 9	21	12	22	10	21	10	22	10	22	17	23	17	10	4	23	16	22	18	16	3	9	−10
29	11	− 4	11	− 9	9	−10	19	5	21	− 3	9	− 3	13	0	19	10	19	4	6	−13	17	5	18	1	6	− 5	6	−13
30	21	4	17	2	16	− 8	11	1	13	− 8	13	0	13	2	20	9	16	4	8	−12	12	6	10	− 3	9	− 8	4	−16
31	22	12	25	6	22	12	26	10	28	8	29	13	27	13	26	9	24	10	20	− 1	22	10	19	5	13	− 1	20	−10
Mns	28.3	19.1	30.5	17.5	26.1	15.8	30.8	18.5	32.1	16.2	30.3	18.2	30.6	18.1	30.7	21.6	31.4	21.9	25.7	13.9	30.4	21.8	29.9	19.9	26.2	16.3	26.0	11.6

Climatological Data for December, 1909.
DISTRICT No. 5, UPPER MISSISSIPPI VALLEY.

GEORGE M. CHAPPEL, District Editor.

TEMPERATURE.

December, 1909, will be noted for its low average temperature, its cloudiness, the frequency of snowstorms and the long period of good sleighing. The temperature was below the normal in all sections of the district, every station reporting a deficiency and a minimum of zero or below, except Cairo, Ill. The deficiency was, however, caused by continuous moderately low temperature rather than by a few extremely low minima. Over the larger part of the district it was the coldest December during the past 20 years or more. The mean temperature for that portion of North Dakota within this district was 4.4°, or 6.3° below the normal. Nearly normal temperature prevailed during the first 2 and the last 3 days of the month, and the maxima for the month were invariably recorded during 1 of those 5 days. During the remainder of the month the temperature was decidedly below the normal. The first and third decades were the coldest, the minimum temperature for the month being recorded generally on the 9th. The highest temperature, 52°, was recorded at Forman on the 1st, and the lowest, −42°, was recorded at Cando on the 9th.

In Minnesota the average temperature was 9.8°, or 6.1° below the normal, and 7.5° lower than the average for 1908.

The month was as cold as December, 1903, which was the coldest December on record previous to the past month. The mean temperature ranged from 14.0°, or slightly higher, in Nicollet, eastern Winona, and eastern Houston counties to 2.0° in Kittson County. The deficiency in temperature was general, and ranged from 5° to 7° in the south and northwest to about 1° in the extreme northeastern counties. Warm weather prevailed from the 1st to the 5th, followed by steady cold weather the rest of the month. The 1st was generally the warmest day and the 29th the coldest. The highest temperature recorded was 58° at Saint Peter on the 2d, and the lowest, −39° at Warroad on the 9th.

The month was one of the coldest on record in Wisconsin. During the first 5 days the temperature was comparatively high, but a change to cooler occurred on the 5th, and for the remainder of the month the temperatures remained below freezing at nearly all stations, and the minimum was below zero on many days. The mean temperature was about 7° below the normal over the southern half of the State, and about 4° below normal over the northern half. The maxima for the month occurred at most stations on the 1st and 2d, and the minima on the 18th and 29th.

It was the coldest December in Iowa since State-wide observations began in 1890, and probably the coldest since 1876. The average temperature for the State was 12.1° lower than the average for December, 1908, and 2°9° lower than for any other December since 1890. The monthly minima were not, however, as low as in 1892, 1901, and 1903, but the weather was continuously cold from the 5th to the 30th, inclusive. The first 4 days were moderate, with maximum temperatures from 45° to 60° on the 2d, which was the warmest day of the month. A cold wave passed over the State on the 5th, and from that date to the 30th the maximum temperatures were below the freezing point, except on 1 or 2 days, and the minimum temperatures were near or below zero. At many stations, the minimum temperature was below zero on a greater number of days than was ever before recorded during the month of December. The lowest temperature was recorded on the 29th, except in the extreme southeastern counties, where the minimum occurred on the 30th.

In Missouri it was the coldest December in the past two decades or more; the mean temperature being continuously below the normal from the 5th to the 30th, inclusive, and the average daily deficiency was about 9° per day. The mildest period of the month was from the 1st to the 14th, when the day temperatures ranged from 50° to 65°. There were 4 periods during the month when the minimum temperatures were zero or below, viz: 8–9th, 18–19th, 26th, and 29–30th. The minimum temperatures were generally within the limits of previous extremes, and the number of days with zero temperature ranged from 7 to 10.

In Indiana the mean temperature was much below the normal, and it was the coldest December since records for the State began. The month opened with very mild weather, but a cold wave overspread the State on the 5th and 6th, giving temperatures below zero from the 8th to the 19th. The weather then continued uniformly cold during the remainder of the month, it being above normal on only 2 or 3 days during that time. The severest cold weather occurred near the close of the month, when minimum temperatures of −10° to −13° were recorded throughout both the Kankakee and Iroquois valleys on the 30th.

The average temperature in Illinois was 20.6°, or about 8.5° below the normal. Not since 1880 has the mean temperature for December been so low as it was during the past month. The average number of days on which the minimum temperature was 32° or lower was 27, and the average number of days with zero temperature or lower was 7. The warm, mild temperatures of the previous month continued until the 5th, when there was a sudden and decided change to severe winter conditions, which continued to the close of the month.

The monthly mean temperature for the district, as shown by the records of 289 stations, was 14.3°, which is 7.3° below the normal. The highest monthly mean was 31.0° at Cairo, Ill., and the lowest −1.6°, at Pembina, N. Dak. The highest temperature reported was 72° at Cairo, Ill., on the 4th, and the lowest, −42° at Condo, N. Dak., on the 9th.

PRECIPITATION.

The precipitation was generally above the normal and after the 5th nearly if not all of it fell in the form of snow. The snowstorms were frequent, but the amounts of snowfall were mostly small, except on the 24–25th, when the fall was heavy over the larger part of the district, and, owing to the continuous cold weather, most of the snow remained on the ground until the close of the month, making an unusually long period of good sleighing for December.

In North Dakota the average precipitation was 1.44 inches, or .87 inch more than the normal. With the exception of the precipitation on the 1st and 2d, all of it was in the form of snow. The average snowfall for the district was 12.4 inches. As a result of the heavy snow and accompanying low temperature, considerable delay was caused to railroad traffic and much difficulty was encountered in efforts to open the highways. There was also much suffering of live stock on account of crusted snow and intense cold weather. All elements considered, the weather during the month was the severest in the history of the Climatological Service of the State. Much snow remained on the ground at the close of the month.

The precipitation was twice as heavy in Minnesota as in December, 1908, and the heaviest on record with the single exception of December, 1902, when the average was 1.79 inches. The average for the past month was 1.52 inches. Quite general rains fell on the first 4 days, followed by general and heavy snowfall on the 5th. General and more or less heavy snows fell on the 11th, 16th, 20th, and 27th. The snowfall was unusually heavy. The ground was covered from the 5th to the end of the month to a depth of 5 to 15 inches; but there was

very little frost in the ground under the deep snow, a condition that has seriously interfered with logging in the northern woods and field work in the southern and western portions of the State.

In Wisconsin the precipitation was quite unevenly distributed over the section, but was fairly well distributed throughout the month. In the central and southern counties the total was very nearly the normal amount, but in most of the northern counties it was only a little above one-half the normal. After the 5th practically all of the precipitation was in the form of snow. The severest storm of the month occurred on the 24–25th, when the snow drifted badly and traffic was interrupted to a considerable extent. The ground was partially covered with snow from the 5th to the 11th, and completely covered after the latter date, the depth on the ground gradually increasing until the end of the month.

The average precipitation for Iowa within the district was 2.35 inches, or 1.09 inch above the normal, and has been exceeded in December only twice during the past 20 years. Rains were general from the 1st to 3d, changing to snow in the northern counties on the latter date. The rain changed to sleet over the southern and eastern counties on the 4th, changing to snow on the 5th. After the 5th snow fell at frequent intervals, but the daily amounts were not large, except on the 24–25th, when the amounts ranged from 2 to 12 inches, the largest amounts being reported from the central and east-central counties. At least a trace of precipitation fell at some station in the section on every day of the month, except the 31st; and the number of days with .01 inch or more of precipitation exceeded all former records for December at several stations. The average snowfall for the month was 14.3 inches. The ground was covered from the 3d in the northern and the 5th in southern and eastern counties to the close of the month, and there was a longer period of good sleighing than for many years so early in the winter.

In Missouri the total precipitation ranged from 2 to 6 inches, exceeding the normal by 1 inch to 4 inches. The periods of general precipitation were from the 1st to the 5th, 11–12th, and 24–25th. After the 5th all precipitation was in the form of snow or sleet. The snowfall was more or less general and heavy on the 6–7th, 24–25th, and 29th. The total fall ranged from 7 to over 13 inches, and covered the ground continuously from the 6th to the close of the month.

The precipitation was well distributed in Indiana during the month, and much the greater part fell in the form of snow. On account of the continuous cold weather, a considerable quantity of snow remained on the ground during the latter part of the month; the amount remaining on the ground on the 31st ranged from 7.5 to 14 inches. A fall of about 5 inches of snow occurred on the 7th, and 8 to 12 inches fell on the 24–25th, which caused some delay to railroad traffic, although not to a serious extent.

In Illinois the average precipitation was 2.99 inches, or 0.89 inch above the normal. Rain or snow, in measurable quantities, fell somewhere in the State on 21 days. The greatest monthly amount, 5.27 inches, occurred at Sycamore, and the least, 1.21 inches at Greggsville. The greatest amount in 24 consecutive hours was 2.32 inches at Riley on the 5th, which was the heaviest rainfall in winter at that place since 1880. The average snowfall was 16.4 inches, which was quite heavy as compared with previous records for December.

The average precipitation for the district, as shown by the records of 297 stations, was 2.20 inches, which is 0.96 inch above the normal. The greatest amount, 6.17 inches, occurred at Sublett Mo., and the least, 0.30 inch, at Dunseith, N. Dak. The greatest amount in 24 hours, 2.75 inches, occurred at Sublett, Mo., on the 4th. The average depth of snowfall was 14.4 inches; the greatest depth was at Sycamore, Ill., 32.5 inches, and the least, 1.0 inch at Cairo, Ill. Measurable precipitation occurred on the average of 10 days.

Sunshine and cloudiness.—The average number of clear days was 8; party cloudy, 7; and cloudy, 16. The duration of sunshine was below normal.

Wind.—Northwest winds prevailed. The highest velocity reported was 42 miles per hour from the west at Hannibal, Mo.

MISCELLANEOUS.

The heavy snow and the severe cold weather put a stop to the corn harvest. Much of the corn crop is still in the fields in Iowa and Minnesota, and a great deal of it is on the ground and covered by ice and snow. The heavy snow, however, afforded good protection and was favorable to the winter grains in the southern section of the district. Railroad and street car traffic was delayed considerably by the heavy snows, but over the larger part of the district the delays were temporary. Floating ice was reported in the Mississippi River on the 12th. An ice gorge wrecked the false work of the McKinley bridge, causing a considerable loss. At the close of the month the river was solidly gorged at St. Louis, Mo. Navigation between St. Louis and Cairo was suspended on the 18th. The transfer of passengers, etc., between Birdspoint, Mo., and Cairo, Ill., was at times suspended, and the passage was closed on the 30th.

The Des Moines River, at Des Moines, Ia., did not freeze over until the 20th, notwithstanding the fact that there had been a great deal of severely cold weather prior to that date. The stage of the river was unusually high for the season of the year during the fore part of the month, and as the heavy covering of snow prevented the ground from freezing, except on the surface, the temperature of the water flowing into the river was considerably above the freezing point, thereby requiring more than the usual amount of cold weather to reduce the temperature of the water in the river. The ice, however, was 9 to 10 inches thick at the close of the month, but the ice harvest has not yet begun, except on ponds.

DRAINAGE NOTES.

The heavy snow and the severe cold weather put a stop to the construction of all drainage work, but the boards of supervisors in several counties in Iowa have been active in making plans for the resumption and extension of the work during the coming season. The boards of supervisors of Hardin, Franklin, Wright, and Hamilton counties, sitting in joint session, awarded the contract for the construction of a drainage ditch through the 4 counties above named for $59,000. The estimated yardage of the ditch is 1,000,000 cubic yards, and the length is 27 miles. Work is to be begun April 1, 1910, and completed by January 1, 1911.

SANITARY DISTRICT OF CHICAGO.

Mr. E. H. Heilborn, Division Engineer, is making a topographic survey of the Illinois Valley for the sanitary district of Chicago, and he has in mind the construction of charts and diagrams to show the relation of precipitation to river stages at 40 regular stations along the Des Plaines and Illinois rivers.

THE EFFECT OF DRAINAGE WORK IN NORTHERN IOWA ON THE FLOOD STAGES OF THE RIVERS.

By A. MARSTON, C. E., Dean of Engineering and Professor of Civil Engineering, Iowa State College, Ames, Iowa.

The question is frequently asked, What effect will the extensive drainage work which has been in progress in northern Iowa for the past few years have on the flood stages of the rivers whose sources are in the territory drained?

The people living along the lower courses of these streams seem, very generally, to have the impression that, since the water is to be drained away from the upper portion of the drainage areas, the flood flow of the streams will be increased thereby, and hence greater damage done by flooding the bottom lands bordering the lower courses of these streams.

It is not by any means easy to determine whether these fears will be justified, even in part, for so many factors enter into the question as to make it a very complicated one to answer in any given case.

For the purpose of this discussion, the flow of any Iowa stream may be divided into five classes, as follows: 1. Total flow; 2. Low water flow; 3. Ordinary flow; 4. Ordinary flood flow; 5. Maximum flood flow.

1. *Total flow.*—By this I mean the total amount of water flowing in any stream regardless of the rate at which it flows. The only way in which this could be affected by drainage operations would be by a change in the use of water by crops and evaporation in the watershed which is being drained. The rate of evaporation from drained soil is very high immediately after rains, and greatly decreases between storms. The evaporation from wet, marshy ground is at a less rate than that from cultivated ground immediately after a rain, and at a higher rate than that from cultivated ground between storms. Knowledge on this subject is not exact enough to give the total value in each case in Iowa. I believe it to be probable that the total use of water by crops and evaporation would not be very much different in the two cases under consideration and that there would not be any great effect of the drainage operations upon the total flow of Iowa streams.

2. *Low water flow.*—The low water flow is maintained by underground water coming into the stream, usually from springs, and from general seepage into stream channels. My observations of tile drainage systems and drainage ditches indicate that, in extreme dry seasons when extreme low water flow occurs, tile drains and ordinary drainage ditches do not discharge at all. It is therefore probable that extreme low water flow will not be affected materially by Iowa drainage operations. The ordinary low water flow will probably be increased on account of the additional seepage of water in the soil due to tile drainage, which forms an enormous reservoir of porous soil between the tile drains and the surface of the ground.

3. *Ordinary flow.*—By ordinary flow, I mean those rates of flow lying between low water flow and flood flow. When the construction of tile drainage has been completed, in addition to that of drainage ditches, it is probable that the ordinary flow of streams will be somewhat increased, owing to the storage effect of the porous soil as described above. The construction of drainage ditches alone might have the effect to decrease the ordinary flow, as it is maintained by the gradual emptying of the ponds and marshes between storms. These ponds and marshes constitute natural reservoirs which are being destroyed by the construction of drainage ditches.

4. *Ordinary flood flow.*—By flood flow, I mean rates of flow in excess of the capacity of the regular channels of the streams and which, therefore, cause them to overflow their banks. By ordinary flood flow, I mean those floods which occur more than once in every ordinary year. Tile drainage will eventually decrease the ordinary flow by creating a storage reservoir in the porous soil already described. Tile drainage will eventually be extended to a large percentage of the total areas of the regions in which extensive drainage operations are to be carried on The extension of tile drainage will be continued to scores, perhaps hundreds of years, and a much larger percentage of the total area of Iowa will eventually be tile drained than most people at the present time consider at all probable.

While this will be the ultimate effect of Iowa drainage operations, yet the construction of drainage ditches alone will probably temporarily increase the ordinary flood flow of the streams, for the drainage ditches are destroyeing the natural reservoirs formed by the ponds and marshes, which in the past have served to hold back part of the flood water. It is impossible to foretell how long a time will elapse before this temporary increase of flood flow is overcome by the storage effect due to the tile drainage.

5. *Maximum flood flow.*—By this, I mean floods which occur only at intervals measured by years. Such floods have occurred in the past whenever a heavy, long-continued storm occurs at a time when the natural reservoirs formed by the ponds and marshes have already been filled by previous rains. At such times the ponds and marshes have comparatively little additional storage capacity, only such as is afforded by the rise in level necessary to discharge their waters at a sufficient rate through their outlet channels. The construction of drainage ditches alone will operate to increase the maximum flood flow, but will not have such a marked effect upon it as in the case of ordinary floods. Tile drainage will eventually decrease the rate of maximum flood flow by an amount depending upon the thoroughness of the drainage. I believe that eventually tile drainage will be made so thorough and extensive that no storm will find the porous soil above the tile drains completely filled with water to the surface of the ground. Whenever this is brought about, the effect of tile drainage will be to decrease materially the rate of maximum flood flow.

To sum up: First, the probable effect of the construction of drainage ditches alone without tile drainage is to decrease the ordinary flow of streams and increase the flood flow; second, the probable effect of tile drainage is to increase the ordinary and low water rate of flow of streams and decrease the flood flow; third, the combined effect of drainage ditches and tile drainage will probably be to cause a temporary increase in the rate of flood flow, and, eventually, a permanent decrease in the rate of flood flow.

TABLE 1.—*Climatological data for December, 1909. District No. 5, Upper Mississippi Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
North Dakota.																				
Amenia	Cass	934	11	7.2	− 5.3	44	1	−24	10†	58	1.50	+ 1.15	0.75	7.5	5	9	5	17	nw.	C. E. Wood.
Bottineau	Bottineau	1,638	13	4.0	− 4.0	30	1	−25	9	37	1.75	+ 1.45	0.46	.....	12	7	8	16	nw.	J. A. Kamp.
Cando	Towner	1,488	7	1.8[b]	− 4.6	38[b]	1	−42[b]	9	43[b]	0.63	+ 0.19	0.25	.....	4	.....	.....	.....	.....	E. T. Judd.
Crosby	Williams	.....	2	5.0	.....	34	1†	−22[a]	9	35[a]	0.93	.....	0.38	4.5	6	9	7	15	nw.	B. Lancaster.
Devils Lake	Ramsey	1,482	3	3.6	− 4.4	35	1	−31	9	38	1.05	+ 0.66	0.50	12.4	12	7	7	17	nw.	U. S. Weather Bureau.
Donnybrook	Ward	1,760	9	5.5[c]	− 9.6	39[c]	31	−25[c]	9	38[c]	0.75	+ 0.09	0.30	7.5	5	.....	.....	.....	nw.	F. S. Gieselman.
Dunseith	Rolette	.....	11	4.4	− 5.4	35	1	−29	9	31	0.30	− 0.05	0.20	3.0	2	15	9	7	w.	L. H. Trowbridge.
Edmore	Ramsey	1,524	3	3.0	.....	40	1	−35	9	35	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. R. Aslakson.
Forman	Sargent	1,249	14	9.8	− 4.4	52	1	−30	29	45	1.53	+ 1.16	0.52	10.1	8	3	8	20	nw.	A. Maltby.
Grafton	Walsh	827	11	2.7	− 4.5	27	2	−27	9	49	2.10	+ 1.62	1.10	21.0	10	3	18	10	n.	H. Lamoure.
Granville	McHenry	1,504	2	.....	.....	38[b]	31	−26[b]	9	35[b]	0.70	.....	0.18	.....	7	.....	.....	.....	.....	W. A. Christiansen.
Hamilton	Pembina	824	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	D. Wallace.
Hannah	Cavalier	1,568	3	5.6	.....	38	1	−36	9	33	1.60	.....	0.40	16.0	8	10	7	14	nw.	J. Moffatt.
Hansboro	Towner	.....	1	3.8	.....	38	1	−30	9	31	0.84	.....	0.18	7.6	7	6	4	21	nw.	Geo. Dale.
Hillsboro	Traill	901	3	6.0	.....	36	1	−24	9	30	2.28	.....	0.85	10.1	9	12	5	14	n.	M. H. Norman.
Lakota	Nelson	1,519	2	1.8[c]	.....	36[b]	1	−32[b]	9	34[b]	4.84	.....	1.25	28.0	12	.....	.....	.....	nw.	C. R. Pettes.
Langdon	Cavalier	1,615	13	3.8	.....	40	1	−35	9	47	3.50	.....	0.70	35.0	9	12	4	15	.....	J. Woolner.
Larimore	Grand Forks	1,134	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. Naylor.
Lisbon	Ransom	1,091	4	5.9	.....	36	1	−30	29	61	2.25	.....	1.05	10.0	6	12	2	17	nw.	H. K. Adams.
McKinney	Ward	1,640	14	4.5	− 6.1	40	31	−29	19	54	0.80	+ 0.34	0.50	8.0	3	4	17	10	nw.	M. P. Swenson.
Manfred	Wells	1,605	7	2.9	.....	34	31	−26	9†	41	1.70	.....	0.40	17.0	12	6	17	8	nw.	P. B. Anderson.
Mayville	Traill	975	13	6.8	− 7.1	41	1	−25	9	30	1.40	+ 1.02	0.60	13.8	6	27	0	4	n.	M. N. Pope.
Milnor	Sargent	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	O. B. Jorgenson.
Minot	Ward	1,557	10	5.3	− 6.8	40	31	−27	19	55	0.88	+ 0.55	0.20	8.8	10	15	1	15	nw.	J. J. Bates.
Minto	Walsh	820	15	5.4	− 5.3	39	1	−25	9†	29	1.38	+ 1.00	0.45	.....	6	10	9	12	n.	S. S. Marsh.
Oriska	Barnes	1,270	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. E. Williams.
Park River	Walsh	998	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. Heyward.
Pembina	Pembina	789	10	−1.6	− 9.4	28	1	−36	8	30	2.90	+ 2.26	1.20	29.0	7	10	8	13	se.	F. C. Warner.
Portal	Ward	1,954	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. S. Davis.
Power	Richland	1,020	16	5.4	− 6.7	36	1	−29	29	39	1.85	+ 1.41	0.60	17.0	7	8	11	12	nw.	J. A. Power.
Pratt	McHenry	.....	4	2.6	.....	43	1	−27	9	38	0.70	.....	0.40	7.0	2	7	1	23	nw.	C. H. Butts.
Towner	....do	1,475	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	B. Bagley.
University	Grand Forks	830	17	4.0	− 7.4	40	1	−27	10	32	0.75	+ 0.22	0.20	7.5	5	2	8	21	n.	G. W. Stewart.
Wahpeton	Richland	962	17	5.8	− 9.4	40	1	−27	29	37	1.32	+ 0.95	0.67	15.0	4	5	5	21	nw.	E. G. Burch.
Walhalla	Pembina	966	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Chas. H. Lee.
Westhope	Bottineau	.....	2	4.8	.....	36	1	−26	9	34	0.38	.....	0.12	.....	9	8	8	15	nw.	J. D. Currie.
Willow City	....do	1,471	15	3.0	− 7.0	38	1	−30	9	50	1.10	+ 0.69	0.60	11.0	6	2	15	14	nw.	M. A. Ostby.
Minnesota.																				
Albert Lea	Freeborn	1,229	19	12.6[b]	− 6.1	45	1	−18[b]	29	32[b]	2.00	+ 1.06	0.40	15.0	10	7	8	16	nw.	Edward Carey.
Alexandria§§	Douglas	1,391	15	8.0	− 4.2	41	2†	−24	29	48	1.63	+ 0.47	0.20	15.0	13	5	4	22	nw.	P. O. Unumb.
Angus	Polk	870	7	3.8	.....	39	1	−29	9†	26	0.56	.....	0.34	2.2	4	7	4	18	n.	F. A. Wilson.
Bagley	Clearwater	.....	3	6.4	.....	48	1	−31	29	40	1.49	.....	0.70	13.0	7	8	16	7	nw.	Edward T. Teitsworth.
Baudette	Beltrami	.....	.....	6.7	.....	43	1	−32	29	32	1.23	.....	0.68	15.0	7	8	3	20	nw.	Franz W. Schmidt.
Beardsley	Bigstone	1,090	16	8.7[a]	− 8.2	41[a]	1	−22[a]	29	36[a]	1.04[a]	+ 0.81	0.45[a]	13.0[a]	7[a]	.....	.....	.....	nw.	Roy A. Smith.
Beaulieu	Mahnomen	1,200	7	6.6	.....	48	1	−30	29	40	0.84	.....	0.23	12.0	7	11	5	15	nw.	Dr. L. A. Parkinson.
Bird Island	Renville	1,039	19	11.2	− 5.9	44	1	−21	29	35	0.97	+ 0.38	0.55	8.2	7	3	7	21	nw.	Dr. F. L. Puffer.
Caledonia§§	Houston	1,179	16	14.5	− 6.9	48	1†	−12	30	29	1.63	+ 0.27	0.31	13.2	12	5	11	15	nw.	W. D. Belden.
Campbell§§	Wilkin	984	.....	7.9	.....	40	1	−25	29	52	2.69	.....	0.70	12.5	10	10	0	21	nw.	J. T. Neiseas.
Cass Lake§§	Cass	1,300	3	.....	.....	.....	.....	.....	.....	.....	1.15	.....	0.45	12.5	5	.....	.....	.....	.....	C. W. Burns.
Collegeville	Stearns	1,282	16	11.5	− 7.1	44	1	−21	29	30	1.40	+ 0.95	0.60	19.0	6	12	5	14	nw.	Fridolin Tennbreull.
Crookston§§	Polk	863	19	5.8	− 6.2	35	1	−28	29	35	1.50	+ 1.03	0.30	14.0	10	12	1	18	n.	A. G. Anderson.
Detroit§§	Becker	1,364	13	5.4	− 5.0	39	2	−36	30	60	1.00	+ 0.51	0.48	8.0	5	10	9	12	sw.	G. W. Peoples.
Fairmont, (near)	Martin	753	22	13.0	− 7.5	44	2	−17	29	33	1.09	+ 0.01	0.30	9.5	8	8	19	14	nw.	W. F. Wherland.
Faribault	Rice	1,003	12	11.4	− 7.5	47	1	−19	29	31	1.10	+ 0.52	0.41	13.5	9	6	4	21	nw.	A. R. T. Wylie.
Farmington	Dakota	902	21	11.6	− 7.5	46	1	−20	29	34	1.14	− 0.10	0.30	12.0	7	7	5	19	nw.	D. F. Akin.
Fergus Falls	Ottertail	1,210	17	9.7	− 5.1	43	1	−20	29	28	1.76	+ 0.92	0.27	13.2	18	4	13	14	nw.	Chas. E. Kissenger.
Fort Ripley	Morrison	1,135	3	.....	.....	.....	.....	.....	.....	.....	1.02	.....	0.32	12.9	7	13	3	15	n.	J. J. Tucker.
Fosston	Polk	1,288	.....	4.8	.....	43	1	−28	9	44	.....	.....	.....	.....	.....	4	15	12	nw.	O. N. Hem.
Glencoe	McLeod	1,006	13	13.0	− 4.8	47	1	−19	29	34	2.63	+ 2.23	0.70	17.8	11	8	13	10	nw.	C. G. Selvig.
Grand Meadow	Mower	1,338	22	12.1	− 6.7	49	2	−17	30	35	1.76	+ 0.47	0.24	22.0	16	7	3	21	nw.	C. F. Greening.
Hallock	Kitson	815	10	2.0	− 6.8	35	1	−35	9	38	1.12	+ 0.60	0.20	11.2	9	19	1	11	n.	D. A. Robertson.
Halstad§§	Norman	870	3	5.4	.....	34	1	−24	9†	49	1.15	.....	0.45	6.4	5	15	6	10	nw.	A. G. Holstrom.
Hinckley	Pine	1,050	4	12.2	.....	48	1	−21	29	29	2.26	.....	0.71	11.5	7	4	7	20	n.	W. R. Newman.
International Falls	Koochiching	.....	1	.....	.....	.....	.....	.....	.....	.....	1.90[a]	.....	0.60[a]	14.0[a]	7[a]	.....	.....	.....	nw.	Rees Roe.
Kelliher	Beltrami	.....	3	7.1	.....	45	1	−31	29	37	1.41	.....	0.75	16.6	7	5	11	15	nw.	A. Gilmour.
Lake Crystal	Blue Earth	.....	2	13.2	.....	46	1	−18	29	35	1.34	.....	0.47	9.0	7	9	4	18	nw.	W. P. Cobb.
Leech Lake Dam	Cass	1,300	21	7.8	− 4.8	44	1	−26	29	37	1.57	+ 0.71	0.80	16.8	12	6	10	15	w.	U. S. Engineer Corps.
Litchfield	Meeker	1,129	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	N. Y. Taylor.
Little Falls	Morrison	1,117	3	10.4	.....	46	1	−21	29	26	2.67	.....	1.20	23.5	7	9	9	13	.....	Maurice Coleman.
Long Prairie	Todd	1,299	17	10.1	− 3.8	42	1†	−21	29	29	.....	.....	.....	.....	.....	14	1	16	nw.	A. W. Sheets.
Lynd (2)	Lyon	.....	17	.....	.....	43	1	−22	29	.....	0.99	+ 0.37	0.40	9.0	4	.....	.....	.....	.....	Jacob Rouse.
Mankato§§	Blue Earth	747	10	.....	.....	.....	.....	.....	.....	.....	1.20	− 0.02	0.37	12.5	9	5	7	19	nw.	Sadie H. Blake.
Milaca	Mille Lacs	1,072	12	9.4	− 6.1	43	2†	−21	29	36	1.92	+ 1.57	.....	13.0	..	10	5	16	nw.	C. H. Foss.
Milan	Chippewa	995	15	8.8	− 7.5	43	1	−23	29	45	3.25	+ 2.52	1.25	14.9	8	2	17	12	nw.	O. K. Opjorden.
Minneapolis (1)	Hennepin	918	18	12.5	− 7.5	48	1	−17	29	24	2.38	+ 1.43	0.81	19.2	14	7	5	19	w.	U. S. Weather Bureau.
Minneapolis (2)**	Hennepin	850	16	12.2	− 6.2	48	1	−19	29	.....	1.65	+ 0.92	0.58	14.5	12	7	6	18	nw.	J. H. Ashenbeck.
Montevideo§§	Chippewa	900	19	10.6	− 8.0	54	1	−20	29	42	1.57	+ 0.85	0.42	16.1	12	5	9	17	nw.	Lloyd G. Moyer.
Moorhead	Clay	935	28	6.6	− 4.1	38	1	−23	29	34	1.74	+ 1.00	0.56	14.4	14	5	12	14	nw.	U. S. Weather Bureau.
Mora	Kanabec	.....	4	10.7	.....	46	1	−19	29	32	1.44	.....	0.60	12.5	9	12	3	16	w.	Hans Peterson.
Morris	Stevens	1,170	24	9.8	− 6.3	43	2	−23	29	26	0.90	+ 0.30	0.20	9.0	9	12	5	14	nw.	D. T. Wheaton.
New London	Kandiyohi	1,215	15	8.3	− 6.5	41	2	−22	29	45	1.69	+ 1.23	0.69	15.0	6	6	13	12	nw.	Harold Swenson.
New Richland	Waseca	1,180	15	12.2	− 7.0	46	1†	−20	29	33	1.71	.....	0.35	9.5	12	10	5	16	nw.	N. O. Tyrholm.
New Ulm§§	Brown	791	29	10.8	− 7.6	41	1	−17	29	39	2.15	− 1.49	0.65	21.5	10	2	2	27	nw.	A. J. Eckstein.
Osakis	Douglas	1,343	2	9.5	.....	44	1	−21	29	30	1.62	.....	0.40	17.6	12	6	3	22	nw.	John B. Johnson.
Park Rapids§§	Hubbard	1,426	19	7.0	− 4.7	38	1	−24	9†	44	1.31	+ 0.64	0.35	10.5	12	10	2	19	nw.	Dr. P. A. Walling.
Pine River Dam	Crow Wing	1,251	22	9.1	− 4.4	46	2	−22	29	37	1.03	+ 0.37	0.53	10.0	4	8	16	7	nw.	Neil McKay.
Pokegama Falls	Itasca	1,290	22	8.6	− 1.9	42	1	−32	29	39	1.22	+ 0.38	0.70	12.0	8	7	9	15	nw.	U. S. Engineer Corps
Red Lake	Beltrami	.....	1	7.2	.....	40	1	−32	29	39	1.93	.....	0.90	18.0	8	9	10	12	w.	A. C. Goddard.
Red Wing	Goodhue	708	20	13.6	− 6.5	50	2	−16	29	31	1.64	+ 0.29	0.80	11.8	4	11	11	9	nw.	F. A. Whittier.
Red Wing (river)§§	....do	680	10	.....	.....	.....	.....	.....	.....	.....	1.44	+ 0.09	0.46	11.3	11	6	3	22	nw.	Louis Bach.
Redwood Falls	Redwood	1,033	2	12.6	.....	45	1	−20	29	37	2.17	.....	0.80	17.0	7	8	4	19	nw.	N. B. Andersen.
Reeds Landing§§	Wabasha	681	11	.....	.....	.....	.....	.....	.....	.....	0.93	+ 0.26	0.40	7.3	9	3	5	23	nw.	John Deschneau.
Rochester§§	Olmstead	991	5	13.0	.....	49	2	−18	29	40	0.60	.....	0.18	5.6	6	9	0	22	nw.	S. R. Case.
Roseau	Roseau	1,040	2	5.2	.....	41	1	−37	9	33	1.44	.....	0.74	.....	3	15	11	5	nw.	A. Waag.
St. Charles§§	Winona	850	18	11.5	− 9.1	49	2	−17	30	31	1.54	+ 0.22	0.47	13.2	12	6	7	18	se.	S. W. Gleason.
St. Cloud	Sherburne	1,020	31	11.3	− 7.1	49	2	−20	29	24	1.63	+ 1.17	0.59	9.0	6	13	1	17	nw.	Jos. H. Capser.
St. Paul	Ramsey	837	38	12.2	− 7.1	48	1	−18	20	27	1.52	+ 0.46	0.53	14.5	12	6	8	17	nw.	U. S. Weather Bureau.

TABLE 1.—*Climatological data for December, 1909. District No. 5*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Minnesota—Cont'd.																				
St. Peter	Nicollet	840	16	15.3	− 4.2	58	2	−20	29	42	1.71	+ 1.09	0.70	8.7	4	19	4	8	nw.	Charles C. Cavanaugh.
Sandy Lake Dam	Aitkin	1,234	16	11.0	− 1.8	45	2	−22	29	29	1.96	+ 1.17	0.85	15.0	11	4	4	23	w.	U. S. Engineer Corps.
Shakopee	Scott	750	14																	
State Sanitorium	Cass		1	8.6		45	1	−23	9	29	1.39		0.69	16.1	10	10	6	15	nw.	Dr. W. J. Marcley.
Stillwater§§	Washington	694	4								1.55		0.38	14.8	8	11	5	15	nw.	W. B. Nease.
Taylors Falls	Chisago		2	12.8		51	1	−24	29	36	1.30		0.30	15.0	8	8	6	17	n.	Mpls. Gen. Elec. Co.
Wabasha[m]	Wabasha	662	17																	Herman Yost.
Warroad	Roseau			4.6		42	1	−39	9	35						6	5	20	nw.	John Sawyer.
West Concord	Dodge	1,232	1	11.5		46	1†	−18	29	34	1.20		0.60	12.0	3	2	16	13	nw.	O. H. Orcutt.
Willow River	Pine	1,046	11																	J. A. Brandt.
Windom	Cottonwood	1,336	3	12.0		45	1	−20	29	38	1.43		0.64	7.0	4	8	9	14	nw.	Taber C. Richmond.
Winnebago§§	Faribault	1,100	10	11.5	− 8.3	48	1	−18	29	38	1.39	+ 0.53	0.39	10.0	8	6	9	16	nw.	H. H. Haight.
Winnibigoshish	Itasca	1,300	21	8.6	− 4.4	44	1	−25	29	36	1.18	+ 0.44	0.67	13.7	9	9	5	17	nw.	U. S. Engineer Corps.
Winona	Winona	680	14	14.8	− 6.7	50	1†	−12	18	30	1.52	+ 0.34	0.58	10.4	11	9	9	13	w.	P. C. Meyers.
Worthington§§	Nobles	979	14																	W. I. Carpenter.
Zumbrota	Goodhue	979	14	12.1	− 7.3	47	1†	−16	29	29	1.17		0.40		6	9	11	11	nw.	W. C. Rowell.
South Dakota.																				
Millbank	Grant	1,148	20	8.8	−10.0	44	31	−19	29	55	2.80	+ 2.14	1.40	19.1	7	8	1	22	nw.	T. T. Patridge.
Wisconsin.																				
Antigo	Langlade	1,489	14	15.2	− 3.7	41	5	− 9	18	28	0.79		0.20	4.4	9	3	2	26	w.	E. C. Larzeler.
Barron	Barron	1,115	16	11.7	− 5.2	46	1	−18	29	25	1.24	0.00	0.70	11.4	9	9	9	13	nw.	W. A. Kent.
Beloit	Rock	750	19	17.6	− 5.9	53	2†	−10	30	37	4.47	+ 2.61	1.10	31.4	12	15	1	15	w.	Smith Observatory.
Brodhead	Green	812	11	15.2		53	1	−20	19†	41	3.71		1.03	27.0	9	16	4	11	nw.	H. D. Kirkpatrick.
Burnett	Dodge	880	5	14.2		50	1†	−13	20	31	3.09		1.10	25.2	9	6	7	18	nw.	Geo. W. Smith.
Delavan	Walworth	920	16	16.2	− 8.1	52	1	−17	30	37	3.45	+ 1.85	1.23	20.2	11	9	4	18	w.	E. S. Austin.
Dodgeville	Iowa	1,116	10								3.76		0.80	26.8	10	13	2	16	s.	Geo. H. Butler.
Downing	Dunn	983	6	10.4		49	1	−22	18†	38	1.15		0.40	11.5	5	0	3	28	w.	E. F. Stoddard.
Eau Claire	Eau Claire	800	18	13.9	− 6.7	49	1	−12	18	37	1.46	− 0.05	0.63	8.3	13	6	10	15	nw.	R. D. Whitford.
Ellsworth	Pierce	1,068	1																	H. G. Woods.
Glidden	Ashwood	1,519									0.62		0.15		8	11	0	20	se.	George Sell.
Grand Rapids	Wood	1,021	10	13.7		50	1	−15	18†	40	1.36		0.39	13.8	11	10	5	16	w.	W. B. Raymond.
Grantsburg	Burnett	1,095	18	11.0	− 5.1	50	1	−26	29	30			0.40	14.0		9	4	18	sw.	Theodore Olsen.
Hancock	Waushara	1,091	17	14.4	− 5.9	49	1†	−13	18	32	1.50		0.55			6	7	18	nw.	F. B. Hamilton.
Hatfield	Jackson	973	1	14.8		62	1	−22	18	43			0.40		3†	7	6	18	w.	W. S. Woods.
Hayward	Sawyer	1,197	18	11.8	− 4.3	50	1	−15	18	38	0.68	− 0.45	0.25	4.8	6	3	7	21	w.	W. E. Swain.
Hillsboro	Vernon	1,000	18	12.2	− 8.3	50	1†	−24	19	48	2.10	+ 0.53	0.80	17.0	7	8	13	10	e.	E. V. Wernick.
Koepenick	Langlade	1,683	18	14.2	− 4.2	50	1	−15	18	38	1.46	+ 0.24	0.72	7.0	5	0	7	24	nw.	E. S. Koepenick.
La Crosse	La Crosse	714	37	15.2	− 7.6	52	1	−11	18	43	1.79	+ 0.46	0.46	16.4	14	3	9	19	sw.	U. S. Weather Bureau
Lake Mills	Jefferson	897	18	16.3	− 6.7	52	1	−12	20†	37	3.87	+ 2.26	1.14	22.0	17	5	12	14	sw.	S. N. D. Smith.
Lancaster	Grant	1,070	19	14.2	− 6.8	51	5	−14	29†	41	1.65	+ 0.10	0.60	19.0	9	4	9	18	w.	Edward Pollock.
Long Lake	Oneida	1,592	1	16.0		54	1	−13	28†	36	0.90		0.33	5.0	14	2	10	19	w.	Louie Frank.
Madison	Dane	974	31	15.4	− 7.3	51	5	− 8	29	41	3.15	+ 1.38	1.06	23.1	14	7	8	16	w.	U. S. Weather Bureau.
Mather	Juneau	962		13.1		50	5	−17	30	39	1.83		0.37	11.5	11	5	8	18	w.	Frank Evans.
Mauston	...do	882	13	14.8	− 4.7	51	1	−17	30	35	2.26	+ 0.88	0.55	20.0	5	8	9	14	nw.	E. L. Hitchcock.
Meadow Valley	...do	974	18	13.8	− 5.3	51	1	−15	18†	35	1.50	+ 0.28	0.78	16.0	8	3	14	14	nw.	C. H. Johnson.
Medford[a]	Taylor	1,420	18	13.8	− 4.2	50	1	−12	18	32	1.15	− 0.13	0.75	3.0	5	2	11	18	w.	William Zeit.
Merrill	Lincoln	1,267	3	18.1		62	1	− 9	28	39	0.84		0.25	5.8	7	9	11	11	w.	F. M. McElroy.
Minocqua[a]	Oneida	1,604	5	14.2		49	1†	− 8	8†	28						7	6	18	w.	Charles W. Hooper.
Mondovi	Buffalo	738	1	12.4		48	1†	−27	18	33	1.39		0.46	12.0	14	12	7	12	w.	Dr. Charles Hebard.
Mount Horeb	Dane	1,226	5	13.9		50	1†	−14	18†	45	2.67		0.88	14.0	11	8	5	18	nw.	W. M. Lewis.
Muscoda	Grant	666		17.6		52	5	−21	18	28	2.39		0.36	17.4	11	6	8	17	sw.	Henry Eckstein.
Neillsville	Clark	996	20	13.4	− 5.8	50	1	−14	17†	31	1.92	+ 0.34	1.30	8.0	3	2	3	26	nw.	William Heaslett.
New Richmond	St. Croix	990	4	15.4		48	3	−21	29	35	1.64		0.91	7.5	4	12	10	9	nw.	F. R. Van Meter.
Osceola§§	Polk	806	18	11.8	− 4.4	48	1	−25	18	36	1.92	+ 0.70	0.90	16.0	7	6	9	16	w.	C. W. Staples.
Portage	Columbia	809	13	15.4	− 6.5	53	1	−10	30	31	1.56	− 0.05	0.60	18.0	6	12	7	12	nw.	James Clear.
Prairie du Chien§§	Crawford	690	22	17.0	− 6.8	62	2	−16	30	46	2.05	+ 0.40	0.55	19.0	11	8	3	20	nw.	John Ducharme.
Prentice	Price	1,551	11	12.4		55	1	−18	30	45	0.94		0.28	4.8	6	3	2	26	w.	J. G. Lash.
Rhinelander	Oneida	1,550	4	17.2		52	1	− 6	8†	34	1.27		0.27	11.2	18	5	5	21	nw.	John Lind.
Sauk City	Sauk	758	1	16.0[a]		52[a]	1†	−22[a]	30	34[a]				22.0[a]					w.	K. Derleth.
Shullsburg	Lafayette	1,019	3	15.2		51	5	−13	29	39	3.87		1.07	25.5	13	10	4	17	w.	H. B. Chamberlin.
Solon Springs	Douglas	1,083	2	12.3		51	1	−18	29	37	2.15		1.50	2.5	4	11	6	14	nw.	J. M. Sayles.
Spooner	Washburn	1,104	14	12.2	− 4.1	51	1	−21	29	29	1.47	+ 0.74	1.09	3.0	4	15	9	7	w.	H. A. Bresee.
Stanley	Chippewa	1,082	5	13.4		51	1	−16	18	35	1.11		0.54	5.2	8	5	8	18	nw.	L. E. Scott.
Stevens Point	Portage	1,113	16	14.4	− 4.8	50	1	−13	18	31	2.63	+ 1.49	1.00	13.1	11	6	3	22	w.	G. E. Culver.
Valley Junction	Monroe	930	17	14.1	− 5.2	52	1	−15	30	38	2.98	+ 1.73	0.65	16.0	12	5	8	18	nw.	F. Muermann.
Viroqua	Vernon	1,412	18	14.3	− 6.9	50	1	−14	18	35	1.58	− 0.01	0.58	16.5	13	8	8	15	sw.	H. E. Rogers.
Vudesare[a]	Vilas	1,600	1	14.8		52	1	− 6	20†	32	0.89		0.44	7.2	11	3	8	20	nw.	L. L. Thomas.
Watertown§§	Jefferson	824	17	17.0	− 4.4	51	5	−13	30	37	3.79	+ 2.06	0.82	21.8	14	6	10	15	sw.	Charles J. Salick.
Waukesha (1)	Waukesha	970	13								2.96	+ 1.64	1.17	14.5	11					A. V. B. Dey.
Waukesha (2)	...do	864	1	16.6		51	5	− 9	30	31	3.95		1.43	19.6	11	4	14	13	nw.	Carroll College.
Wausau	Marathon	1,212	17	16.6	− 1.3	51	1	− 8	18	29	0.90	− 0.51	0.26	7.7	7	5	10	16	w.	H. A. Beilke.
Weyerhaeuser	Rusk	1,297	2	12.4		52	1	−16	18	41	1.87		1.00	8.9	10	3	12	16	nw.	Miss Etta Stiles.
Whitehall	Trempealeau	675	17	13.0	− 6.3	52	2	−26	18	35	1.35	− 0.04	0.40	11.0	6	6	5	20	w.	H. A. Towner.
Iowa.																				
Albia§, §§	Monroe	959	10	16.4	− 8.6	49	1	−13	29	31	1.80	+ 0.66	0.80	9.2	6	8	7	16	nw.	J. I. Chenoweth.
Algona§	Kossuth	1,213	34	13.8	− 6.3	45	2	−15	29	36	1.29	+ 0.26	0.30	17.0	12	14	4	13	nw.	Dr. F. T. Seeley.
Alta§§	Buena Vista	1,513	17	11.2	−10.2	44	1	−19	29	44	1.33	+ 0.40	0.33	11.0	11	9	6	16	nw.	David E. Hadden.
Alta (near)	Buena Vista										1.39	+ 0.55	0.30	12.0	10					W. J. Minard.
Amana	Iowa	721	31	17.0	− 5.6	51	5	−13	30	37	2.37	+ 0.92	0.52	12.0	12	8	8	15	nw.	C. Schadt.
Ames	Story	926	27	15.0	− 7.6	47	1†	−14	29	40	5.29	+ 4.27	2.00	7.0	10	11	3	17	n.	Iowa State College.
Baxter§	Jasper	998	8	15.3[b]		47[c]	2	−15[a]	29	38[a]	2.04		0.44	14.0	15	13	4	14	nw.	W. R. Vandike.
Belle Plaine	Benton	828	18	15.9	− 7.8	53	1	−15	30	37	2.72	+ 1.19	0.60	16.5	14	9	2	20	nw.	S. P. Van Dike.
Bloomfield§	Davis			15.8[a]		50	2†	−13	30	42[a]	3.47		1.16	17.8	11	8	5	18	w.	C. R. Davis.
Bonaparte§	Van Buren		17	17.7	−10.2	51	2	−15	30	41	2.41	+ 0.38	0.62	7.0	9					B. R. Vale.
Boone§§	Boone	1,134	3	14.1		46	1	−15	30	45	2.45		0.64	13.0	9	9	3	19	nw.	Carl Fritz Henning.
Britt§	Hancock	1,236	11																	George P. Hardwick.
Buckingham	Tama		8								1.50		0.63		7	9	9	13		W. A. Daniel.
Burlington§, §§	Des Moines	544	12	18.6	− 8.5	55	3†	−13	30	36	4.39	+ 2.84	1.50	24.0	11	10	1	20	w.	Max E. Poppe, jr.
Carroll§§	Carroll	1,265	18	13.2	−10.2	45	1	−19	28	43	1.45	+ 0.46	0.40	11.0	9	13	3	15	w.	Mrs. Joseph J. Wolfe.
Cedar Rapids§§	Linn	733	26	16.5	− 8.5	53	2	−13	30	32	1.50	0.00	0.50	12.2	10	12	2	17	w.	W. J. Greene.
Charles City	Floyd	1,015	20	13.2	− 5.8	48	2	−16	29	29	1.79	+ 0.51	0.44	16.3	16	3	6	22	nw.	U. S. Weather Bureau.
Clear Lake§	Cerro Gordo	1,241	9	14.6	− 5.8	45	1†	−15	29	36	1.80		1.00		7	10	0	21	nw.	Oscar Stevens.
Clinton	Clinton	593	40	17.4	− 7.9	54	2	−13	30	35	6.10	+ 4.25	2.32	25.5	9	2	16	13	w.	Luke Roberts.
Columbus Junction§	Louisa	595	7	19.2	− 7.4	55	2	−11	30	37	2.72	+ 1.26	0.80	15.0	11	12	5	14	w.	J. B. Johnston.
Davenport	Scott	580	36	17.8	− 9.4	55	2	−10	29	40	3.12	+ 1.43	1.36	16.3	13	6	9	16	w.	U. S. Weather Bureau.
Decorah	Winneshiek	975	15	14.8	− 6.2	50	2	−15	29	32	2.24	+ 0.88	0.42	17.0	15					F. H. Baker.
Delaware	Delaware	1,083	17	13.2	− 8.2	51	2	−17	30	32	1.64	+ 0.26	0.47	12.3	10	8	14	9	nw.	William Ball.

TABLE 1—*Climatological data for December, 1909. District No. 5*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Iowa—Cont'd.																				
Des Moines	Polk	861	31	16.9	− 8.8	48	1	−12	29	34	2.32	+ 1.01	0.73	16.0	14	10	2	19	w.	U. S. Weather Bureau.
De Soto‖	Dallas	866	8	16.0[o]	.....	48	1	−15	29	42[a]	2.05	.....	0.59	10.5	5	20	1	10	nw.	R. D. Minard
Dows‖	Wright	1,142	8	16.4	.....	45	2	−18	30	41	.....	.....	.....	.....	.....	10	2	19	w.	G. R. Flett.
Dubuque	Dubuque	639	35	16.6	− 7.9	54	5	−11	29	43	2.08	+ 0.36	0.66	17.7	17	8	7	16	w.	U. S. Weather Bureau.
Earlham	Madison	.....	6	16.2	.....	47	1	−13	29	39	3.49	.....	0.64	16.5	14	15	0	16	nw.	George Phillips.
Elkader	Clayton	727	27	13.4	− 8.2	55	3	−19	18	32	2.46	+ 0.63	0.62	16.5	8	5	20	6	n.	Charles Reinecke.
Elma	Howard	.....	.....	.....	.....	49	2	−17	29	32	1.13	.....	0.20	.....	10	6	16	9	nw.	H. A. Moore.
Estherville‖	Emmet	1,298	12	12.8	− 5.4	45	1	−17	29	41	1.55	+ 0.93	0.50	6.5	6	14	0	17	nw.	A. O. Peterson.
Fairfield	Jefferson	.....	14	17.8	− 7.3	49	1†	−13	30	39	2.39	+ 0.61	1.24	10.4	11	16	12	3	nw.	R. M. McKenzie.
Fayette‖	Fayette	1,003	18	13.7	−12.9	49	2	−21	30.	36	2.84	+ 1.35	0.53	24.5	15	9	11	11	nw.	R. Z. Latimer.
Forest City‖, ‖‖	Winnebago	1,226	14	12.2	− 7.6	45	1†	−15	29	43	1.40	+ 0.55	0.50	12.0	6	7	3	21	w.	J. A. Peters.
Fort Dodge‖‖	Webster	1,126	8	13.0	.....	47	1	−14	29†	44	1.39	.....	0.40	10.0	8	13	1	17	nw.	J. F. Monk.
Fort Madison	Lee	516	59	.....	.....	.....	.....	.....	.....	.....	2.20	+ 0.27	1.60	6.0	3	6	5	20	w.	Miss L. A. McCready.
Gilman	Marshall	1,052	9	.....	.....	.....	.....	.....	.....	.....	2.87	.....	1.20	17.0	8	.....	.....	.....	.....	J. L. Wylie.
Grand Meadow	Clayton	1,180	17	13.4	− 8.1	50	2	−17	29†	39	2.45	+ 0.99	0.50	15.2	11	5	9	17	nw.	F. L. Williams.
Greene	Butler	.....	9	14.6	− 4.4	47	2	−14	29	35	1.95	.....	0.36	.....	14	4	6	21	w.	J. L. Cole.
Grinnell	Poweshiek	1,023	16	17.2	− 7.2	49	2	−13	29	35	1.99	+ 0.82	0.45	13.5	10	12	3	16	w.	D. W. Brainard.
Grundy Center‖	Grundy	976	17	15.0	− 7.6	47	2	−14	29	32	.....	.....	.....	.....	.....	12	5	14	nw.	J. B. Calderwood.
Guthrie Center‖	Guthrie	1,077	13	15.4	− 8.4	47	1†	−16	29	37	2.65	+ 1.55	0.49	13.0	12	12	6	13	nw.	D. G. Beardsley.
Hampton	Franklin	1,155	18	13.7	− 7.8	46	2	−16	29	37	2.23	+ 0.98	0.65	17.2	12	7	8	16	nw.	E. C. Grenelle.
Humboldt	Humboldt	1,095	17	14.5[o]	− 8.5	46	2	−17	29	38[a]	1.36	+ 0.67	0.42	12.0	8	16	1	14	nw.	Henry S. Wells.
Independence‖	Buchanan	921	43	15.3	− 6.3	48	1†	−16	30	34	2.62	+ 1.26	1.20	25.5	10	12	0	19	nw.	George Donohoe.
Indianola	Warren	969	17	16.6[o]	− 9.2	48	1†	−12	29	35[a]	2.32	+ 0.99	0.60	14.8	13	14	2	15	nw.	John L. Tilton.
Iowa City‖	Johnson	683	49	15.8	− 8.4	53	4	−17	30	38	2.52	+ 0.87	0.80	14.0	9	8	1	22	nw.	Arthur G. Smith.
Iowa Falls‖	Hardin	1,170	15	12.6	− 8.5	46	1†	−15	29	35	2.64	+ 1.53	0.74	17.5	13	12	0	19	nw.	J. B. Parmelee.
Jefferson‖	Greene	.....	.....	16.2	.....	47	2	−16	29	39	1.71	+ 0.96	0.50	12.2	9	14	4	13	n.	G. W. Jackson.
Keokuk	Lee	547	37	20.6	− 8.8	55	2	− 9	30	38	2.56	+ 0.69	1.38	8.3	9	8	9	14	w.	U. S. Weather Bureau.
Keosauqua‖	Van Buren	644	16	18.6	− 8.8	60	1	−14	30	41	2.78	+ 1.28	1.49	11.2	10	8	5	18	.....	J. H. Landes.
Knoxville‖	Marion	920	12	18.5	− 8.0	49	1	−11	29	38	2.66	+ 1.28	0.65	11.5	12	12	4	15	nw.	Casey & Belville.
Lacona	Warren	.....	9	.....	.....	.....	.....	.....	.....	.....	4.00	.....	0.90	25.0	14	5	20	6	.....	J. B. Alter.
Le Claire	Scott	576	.....	.....	.....	.....	.....	.....	.....	.....	3.74	+ 2.62	1.58	17.4	12	.....	.....	.....	.....	Miss Margaret T. Disney
Marshalltown‖	Marshall	947	16	14.6	− 8.9	48	2	−13	29†	38	2.98	+ 1.82	1.10	16.2	12	10	3	18	w.	Rolph B. Reasoner.
Mason City‖	Cerro Gordo	1,132	11	13.8	− 7.9	46	1†	−14	29	34	1.59	+ 0.78	0.40	10.0	10	9	6	16	nw.	J. S. Mills.
Mount Pleasant‖	Henry	729	26	18.2	− 8.6	54	2	−13	30	36	3.38	+ 2.01	1.11	12.2	10	14	4	13	nw.	J. W. Edwards.
Muscatine	Muscatine	.....	49	.....	.....	.....	.....	.....	.....	.....	2.90	+ 0.62	1.20	17.7	11	.....	.....	.....	.....	William Molis.
New Hampton‖	Chickasaw	1,169	11	12.6	− 6.9	47	2	−17	29†	31	1.23	+ 0.30	0.40	10.5	7	6	6	19	w.	A. F. Kemman.
Newton‖	Jasper	944	19	16.8	− 5.6	47	2	−12	29	34	1.85	+ 0.49	0.50	15.0	9	14	3	14	w.	J. P. Beatty.
Northwood‖	Worth	1,222	12	13.3	− 6.7	47	2	−16	29	29	1.70	+ 0.60	0.30	13.0	14	13	4	14	nw.	Charles H. Dwelle.
Olin‖	Jones	760	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. M. Miles.
Osage	Mitchell	1,184	17	13.6	− 6.0	46	2	−20	30	34	.....	.....	0.60	.....	6	9	5	17	nw.	A. D. Bundy.
Oskaloosa‖	Mahaska	843	24	17.4	− 8.5	49	2	−13	29†	40	2.25	+ 0.99	0.71	13.5	12	11	0	20	nw.	Joseph Boyd.
Ottumwa	Wapello	649	14	19.0	− 8.8	50	1†	−11	29	40	2.58	+ 1.27	1.00	8.3	11	7	7	17	w.	
Pella	Marion	877	6	17.6	.....	47	1†	−16	30	41	1.83	.....	0.50	14.5	9	17	0	14	nw.	John H. Ver Steeg.
Perry‖	Dallas	975	7	15.0	.....	47	1	−15	29	35	2.42	.....	0.57	16.0	14	11	6	14	n.	J. A. Harvey.
Plover	Pocahontas	1,426	12	13.2	− 8.1	45	1†	−20	29	36	1.13	+ 0.37	0.30	10.0	10	10	4	17	nw.	J. S. Smith.
Pocahontas‖	do	.....	4	12.5	.....	45	1†	−17	29	35	0.97	.....	0.20	8.3	10	12	6	13	nw.	F. E. Hronek.
Ridgeway‖	Winneshiek	1,215	10	15.2	− 7.1	51	2	−19	30	39	4.12	+ 1.88	0.75	20.0	25	6	4	21	w.	Arthur Betts.
Rockwell City‖	Calhoun	.....	12	14.8	− 7.8	46	1†	−17	29	30	1.95	+ 0.93	0.70	17.0	6	13	8	10	.....	C. M. Randall.
Sac City	Sac	1,278	26	14.1	− 8.6	45	1†	−17	29	35	1.65	+ 0.49	0.40	14.5	8	9	2	20	nw.	E. N. Baily.
St. Charles‖	Madison	1,070	7	17.8	.....	48	1	−12	29	34	2.61	.....	1.00	14.5	11	17	1	13	nw.	R. D. Minard.
Sigourney‖	Keokuk	877	12	17.7	− 8.6	49	2	−13	29	37	2.59	+ 1.18	0.66	17.5	12	3	18	10	nw.	J. T. Parker.
Stockport‖	Van Buren	.....	6	16.6	.....	53	5	−22	30	48	2.57	.....	1.34	14.0	13	10	6	15	nw.	C. L. Beswick.
Storm Lake	Buena Vista	1,440	12	14.3[b]	− 7.1	45	1	−18	29	39[b]	0.89	+ 0 66	0.24	8.5	9	14	10	9	nw.	S. B. Fracker.
Stuart	Guthrie	1,216	10	13.8[c]	− 9.8	48[a]	1	−15[a]	30	41[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tipton‖	Cedar	807	10	17.4	− 8.0	58	5	−10	29†	44	3.23	+ 1.57	1.41	19.1	9	9	8	14	nw.	F. K. Gregg.
Toledo‖	Tama	856	14	15.5	− 8.2	46	1	−13	29†	35	2.96	+ 1.94	0.40	17.5	11	11	4	16	nw.	I. F. Giger.
Wapello‖	Louisa	588	10	19.4	− 8.5	55	2	−11	30	36	2.48	+ 1.17	0.90	12.5	11	8	9	14	nw.	G. W. Schofield.
Washington	Washington	769	27	17.8	− 6.8	53	4	−13	29†	37	2.57	+ 1.24	0.80	.....	10	7	9	15	nw.	Wm. A. Cook.
Waterloo‖	Black Hawk	862	25	15.3	− 6.7	48	1†	−13	29	33	2.55	+ 1.24	0.66	14.5	8	8	8	15	nw.	M. L. Newton.
Waukee	Dallas	1,039	5	14.4[a]	.....	46[a]	2	−15	29	37[a]	2.30	.....	0.55	13.5	11	8	12	11	nw.	Samuel F. Foft.
Waverly‖	Bremer	948	12	14.9	− 6.7	48	2	−14	30	32	2.29	+ 1.11	0.41	16.6	12	3	11	17	nw.	H. S. Hoover.
Webster City‖	Hamilton	.....	3	15.5	.....	47	2	−16	29	37	2.73	.....	0.60	22.5	9	13	3	15	nw.	C. D. Carpenter.
West Bend‖	Palo Alto	1,197	14	13.8	− 6.8	45	2	−16	29	32	0.89	0.00	0.25	5.9	9	12	3	16	nw.	Joseph Dorweiler.
Whitten‖	Hardin	1,036	10	14.6[a]	− 7.0	47	2	−17	29	38	1.79	+ 0.67	0.50	10.0	7	8	6	17	nw.	F. P. Butler.
Wilton Junction‖	Muscatine	683	13	17.8	− 8.0	54	2†	−13	30	36	.....	.....	.....	.....	.....	10	4	17	w.	William Lang.
Winterset‖	Madison	1,129	17	16.5	− 9.5	48	1	−12	29	33	2.05	+ 0.66	0.65	12.3	10	11	2	18	nw.	Robert S. Cooper.
Zearing‖	Story	.....	4	14.6	.....	47	2	−15	29†	42	3.00	.....	0.70	20.2	13	4	12	15	nw.	Orley Reese.
Missouri.																				
Darksville	Randolph	826	18	21.1	−10.2	56	1	−12	29	42	2.73	+ 1.21	0.85	12.2	6	14	2	15	w.	W. H. Broaddus.
Gorin	Scotland	.....	23	.....	.....	.....	.....	.....	.....	.....	2.36	+ 0.30	0.95	11.7	6	6	6	19	nw.	J. W. Pulliam.
Hannibal	Marian	534	18	22.2	− 9.1	57	5	− 7	29	38	2.72	+ 1.07	1.42	12.8	13	9	5	17	w.	U. S. Weather Bureau.
Louisiana	Pike	500	31	22.2	− 8.8	70	4	−14	30	44	2.36	+ 0.45	1.00	9.2	9	6	9	16	nw.	J. F. Farrell.
Mexico	Audrain	797	31	21.2	−11.8	57	2	−10	30	50	3.20	+ 1.14	1.14	10.6	9	13	1	17	w.	J. F. Llewellyn.
Steffenville	Lewis	576	15	20.4	− 8.8	50	1†	−11	29	41	6.17	+ 4.62	2.75	9.2	6	10	4	17	w.	Frank Hall.
Sublett	Adair	1,000	29	21.2	− 9.0	58	4	−10	8†	38	3.50	+ 1.72	0.95	13.5	8	8	13	10	nw.	Lewis Spriggs.
Indiana.																				
Collegeville	Jasper	.....	....	20.4	.....	62	1	−10	30	41	3.21	.....	0.98	17.5	9	7	11	13	se.	Prof. L. C. Klosterman.
Knox‖	Starke	716	....	20.4	.....	58	4	−12	30	27	2.93	.....	0.62	26.9	15	8	10	13	sw.	W. R. R. Tatman.
Laporte	Laporte	810	4	.....	.....	55[k]	4	−12[m]	.....	.....	2.20	.....	0.81	11.0	.....	.....	.....	.....	.....	Chas. D. Rakestraw.
Plymouth	Marshall	790	....	20.5	.....	57	4	−13	30	26	3.28	.....	0.83	23.3	13	7	9	15	w.	J. W. Siders.
Illinois.																				
Aledo	Mercer	738	9	18.4	.....	55	2	−13	30	39	3.66	.....	1.53	15.0	12	11	7	13	nw.	William B. Frew.
Alexander	Morgan	670	16	21.5	− 9.0	59	5	−14	30	38	1.50	− 0.50	0.30	12.2	12	5	7	19	w.	George H. Hall.
Antioch	Lake	861	8	18.8	.....	53	4	− 6	18	35	3.50	.....	1.40	27.5	7	6	9	16	w.	J. C. James, jr.
Ashton	Lee	830	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. J. Yenerich.
Astoria	Fulton	650	9	20.3	.....	55	2†	−12	30	37	2.46	.....	0.55	16.7	7	8	6	17	nw.	Edward V. Bohl.
Aurora	Kane	687	30	17.6	− 8.5	54	4	−16	30	35	3.43	+ 1.36	0.84	18.3	9	8	6	17	w.	W. Holden.
Bement	Piatt	700	10	21.2	.....	58	1†	−11	30	29	1.95	.....	1.00	16.0	5	8	9	14	nw.	Rev. C. S. Adams.
Benton	Franklin	508	7	.....	.....	70[b]	4	− 4[b]	30	31[b]	2.80[b]	.....	0.60[b]	4.7[b]	11[b]	9	1	21	nw.	F. H. Stamper.
Bloomington	McLean	840	17	20.5	− 8.4	59	1	−12	30	38	2.01	− 0.26	0.38	15.2	8	9	2	20	w.	Prof. H. N. Pearch.
Cairo	Alexander	359	33	31.0	− 7.5	72	4	4	30	30	3.84	+ 0.51	1.49	1.0	12	7	9	15	nw.	U. S. Weather Bureau.
Cambridge	Henry	824	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. O. Purviance.
Carlinville	Macoupin	663	19	23.0	− 9.1	61	5	−11	30	38	1.99	− 0.41	0.35	14.0	9	10	7	14	nw.	John H. Seaton.
Chester	Randolph	380	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. A. Gollon, jr.
Chicago	Cook	824	36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Weather Bureau.
Coatesburg	Adams	763	15	20.8	− 7.4	60	1	− 9	30	36	2.36	+ 0.59	1.20	6.0	6	8	6	17	w.	Dr. J. R. Lambert.
Cobden	Union	656	26	30.1	− 6.2	65	4	− 5	30	32	3.14	− 0.53	1.75	.....	6	7	11	13	s.	John Buck.

TABLE 1.—*Climatological data for December, 1909. District No. 5*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.					Observers
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	
Illinois—Cont'd.																				
Colchester	McDonough	604	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Eli V. Kinsey.
Dakota	Stephenson	929	.....	15.2	.....	52	2†	−16	18†	37	3.53	.....	1.43	30.2	13	8	12	11	w.	Harold Leitzel.
Decatur	Macon	685	17	21.2	− 8.9	58	1	−10	30	31	2.40	+ 0.16	0.86	10.5	11	10	9	12	nw.	Prof. J. H. Coonradt.
Dixon	Lee	725	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. E. E. Shaw.
Du Quoin	Perry	459	18	27.2	− 8.2	68	4	− 5	30	32	3.71	+ 0.98	1.90	6.0	10	10	11	10	nw.	G. H. Knetzger.
Dwight	Livingston	600	15	19.4	− 9.0	56	4†	−15	30	35	2.96	+ 1.22	0.63	25.2	12	8	8	15	w.	Edward O. Welsh.
Galva	Henry	842	17	16.9	− 8.5	54	4	−14	30	35	3.64	+ 2.10	1.65	17.2	10	10	3	18	w.	Prof. F. U. White.
Greenville	Bond	635	26	24.2	− 8.4	58	4	− 6	30	33	2.36	− 0.47	0.57	12.7	12	6	5	20	nw.	M. S. Oudyn.
Griggsville	Pike	650	22	22.2	− 9.0	61	5	−10	30	41	1.21	− 0.47	0.40	8.5	6	11	10	10	w.	George F. Kneeland.
Halfway	Williamson	569	13	28.8	− 7.2	69	4	− 5	30	30	3.28	− 0.12	1.35	4.0	11	11	5	15	w.	E. L. Hearn.
Havana	Mason	475	16	22.4	− 8.4	55	2†	− 7	30	38	2.13	+ 0.06	0.60	11.8	7	2	23	6	w.	F. & C. Borgelt.
Henry	Marshall	500	20	19.2	− 8.9	56	1	−12	30	34	3.20	+ 1.35	0.95	20.5	9	15	3	13	nw.	Dr. F. A. Powell.
Hillsboro	Montgomery	675	14	23.5	− 8.3	60	4†	− 8	30	36	2.16	− 0.41	0.50	14.0	9	8	2	21	nw.	Ira L. Woodward.
Joliet	Will	541	17	18.6	− 8.6	55	4†	−12	30	35	3.50	+ 1.36	0.66	16.9	17	8	6	17	w.	F. M. Muhlig.
Kishwaukee	Winnebago	730	19	16.1	− 9.6	54	1	−13	30	38	3.23	+ 1.21	1.30	23.5	13	8	9	14	w.	George Stevens.
Knoxville.§	Knox	775	19	18.4	− 8.4	55	2	−14	30	42	4.18	+ 2.23	1.65	15.0	7	9	2	20	W.	C. N. Butt.
La Grange	Cook	657	16	18.6	− 7.7	55	1	−14	30	30	4.12	+ 2.32	0.86	18.1	10	9	8	14	nw.	Prof. F. E. Sanford.
La Harpe	Hancock	698	30	20.3	− 7.6	55	2†	−14	30	36	2.92	+ 0.57	1.18	9.0	8	10	3	18	nw.	John S. Campbell.
Lanark	Carroll	883	18	14.8	−10.0	52	1†	−21	30	42	2.57	+ 0.88	1.15	14.6	10	15	3	13	w.	M. N. Wertz.
La Salle	La Salle	536	33	19.0	− 8.5	55	1	−10	30	35	3.64	+ 1.36	1.14	21.0	14	4	14	13	w.	U. S. Weather Bureau.
Lincoln	Logan	482	20	21.5	− 9.5	58	5	− 9	30	36	2.86	+ 0.75	0.95	21.5	7	9	9	13	nw.	Prof. C. S. Oglebee.
Martinton	Iroquois	633	21	18.8	− 9.5	58	4	−15	30	37	4.10	+ 1.56	1.00	17.5	11	7	7	17	w.	Joseph H. Peltier.
Mascoutah	St. Clair	425	18	26.9	− 7.4	64	4	− 7	30	34	2.68	+ 0.36	0.94	12.8	12	8	8	15	nw.	George Henrich.
Minonk	Woodford	745	15	19.6	− 7.0	58	1	−15	30	38	2.90	+ 1.13	1.00	19.5	10	7	12	12	w.	O. M. Davison.
Monmouth	Warren	784	16	19.0	− 7.9	56	2	−11	30	35	3.88	+ 2.28	1.91	12.5	11	9	6	16	nw.	Hugh R. Moffet.
Morrison	Whiteside	685	13	17.0	− 7.4	53	2	−15	30	37	3.72	+ 2.23	1.20	24.0	13	11	9	11	w.	Harold A. Maxwell.
Morrisonville	Christian	638	9	22.0	.....	59	5	−14	30	35	1.47	.....	0.42	14.0	9	10	6	15	w.	J. D. Lowis.
Mount Vernon	Jefferson	511	14	26.2	− 6.8	63	4†	− 3	29	41	2.81	+ 0.07	0.63	8.0	10	10	3	18	nw.	Theodore P. Stelle.
Oregon	Ogle	702	.....	15.8	.....	52	2	−14	30	37	3.68	.....	1.50	23.7	11	7	4	20	w.	Samuel Ray.
Ottawa	La Salle	500	23	19.1	− 9.6	56	1	−11	30	39	3.02	+ 1.01	0.71	.....	10	4	1	26	nw.	Miss Maud M. Harris.
Pana	Christian	692	22	22.1	− 9.7	58	4†	−11	30	34	2.53	− 0.19	0.56	11.5	9	12	8	11	w.	C. W. Sibley.
Peoria	Peoria	609	33	19.2	− 8.9	58	5	−12	30	39	2.50	+ 0.13	0.75	18.0	11	8	8	15	w.	U. S. Weather Bureau.
Pontiac	Livingston	546	7	20.0	.....	58	1	−13	30	33	3.22	.....	1.20	22.0	8	6	10	15	sw.	George Butterworth.
Riley	McHenry	956	50	16.6	− 6.6	53	1	−15	30	34	5.05	+ 3.22	2.32	21.8	13	7	8	16	nw.	John West James.
Rockford	Winnebago	763	13	16.9	−10.6	54	1	−10	29	36	3.48	+ 1.40	1.04	26.5	15	14	2	15	.....	Hosmer C. Porter.
Rushville	Schuyler	670	8	21.0	−10.1	56	2	−10	30	33	2.32	+ 0.58	1.10	10.5	7	0	1	30	w.	H. F. Dyson.
St. Charles	Kane	700	12	18.2	− 7.3	54	1	−12	30	32	4.44	+ 2.36	1.02	23.0	12	7	14	10	nw.	Dr. Wm. H. Bishop.
Springfield	Sangamon	644	28	22.0	− 9.3	59	5	− 7	30	38	1.47	− 0.96	0.42	13.3	11	7	5	19	w.	U. S. Weather Bureau.
Staunton	Macoupin	625	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	William F. Schaefer.
Streator	La Salle	626	15	18.8	− 8.6	58	1	−15	30	39	2.85	+ 1.07	0.75	19.5	13	8	12	11	w.	Edward F. Sweetser.
Sullivan	Moultrie	530	9	22.0	.....	60	1	−12	30	30	2.36	.....	0.62	16.8	7	7	11	13	nw.	C. A. Corbin.
Sycamore	De Kalb	855	28	16.8	− 8.5	54	1†	−13	30	37	5.27	+ 3.24	1.20	32.5	16	17	2	12	w.	Miss E. J. Davis.
Tilden	Randolph	500	23	26.5	− 9.0	65	4	− 9	30	33	2.86	+ 0.38	0.76	14.5	10	8	4	19	nw.	James A. Caldwell
Tiskilwa	Bureau	798	14	17.0	− 8.7	54	2	−16	30	36	4.66	+ 2.73	1.50	23.5	11	7	6	18	w.	F. I. Smucker.
Walnut	....do	717	17	18.6	− 8.1	54	2	−12	30	35	4.37	+ 2.76	1.78	22.6	11	11	6	14	w.	O. C. Nussle.
White Hall	Green	573	....	22.9	.....	60	5	−12	30	38	2.38	.....	0.60	12.1	13	12	4	15	w.	Dr. R. A. Pritchett.
Windsor	Shelby	681	10	22.4	− 8.2	61	4	−13	30	36	2.25	− 0.31	0.46	11.7	12	11	4	16	w.	Herbert Rose.
Winnebago	Winnebago	900	21	15.6	− 9.5	54	5	−14	30	40	4.32	+ 2.45	1.36	31.0	14	14	6	11	w.	Frank Osborn.
Yorkville	Kendall	584	21	16.8	− 9.4	53	1†	−17	30	31	1.46	− 0.30	0.70	17.3	9	13	3	15	w.	Herman A. Grimwood.
Zion	Carroll	938	13	.....	.....	.....	.....	.....	.....	.....	4.30	+ 2.77	1.20	30.0	10	17	2	12	.....	Robert F. Gillogly.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Separate dates of fall not recorded.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for December, 1909. District No. 5, Upper Mississippi Valley.*

Stations.	River basins.	Day of month																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
North Dakota.																															
Amenia	Red	.75	.05				.10			T.	T.	T.	T.				T.			.20	.40	T.	T.	T.				T.				1.50
Bottineau	Mouse	T.		.11	.36		.46	.02				.04		.06	.16		.46				.02	.02						.03		.01		1.75
Cando	Sheyenne	.03		.25										.10			.25														0.63
Crosby	Mouse		T.	.12	T.	T.	T.				.38			.28			T.	.65			T.			T.			T.	.06	.04			0.93
Devils Lake	Sheyenne	.41	.22	.03		.08								.07	T.	.08	.04	T.	T.	.02	.06	.01		.02			T.	.01					1.05
Donnybrook	Mouse				.05						.30	.20		.15														.05				0.75
Dunseith	....do		.10	T.	T.			T.					.20																			0.30
Edmore	Sheyenne																															
Forman	....do	.52	.01	T.	.10	.20	.10				T.	.10	.20				.30										T.	T.					1.53
Grafton	Red	.11	.20	.10	.11	1.10											.04	.40			.01		.01					.02				2.16
Granville	Mouse	.02									.08	.17	.06	.18				.13						.06								0.70
Hamilton	Pembina																															
Hannah	....do	.30	.40	.30	.10	.20	.10								.10	T.				T.		.10					T.					1.60
Hansboro	Red	.04	.17		.11		.18								.11		.14					.09										0.84
Hillsboro	....do	.85	.42	.05		.20						.01			.05		.20				.40				.10							2.28
Lakota	Sheyenne	.72	.70	.30	1.25	.90	.05	T.								T.	T.		.06	.03	.35	.03		T.	T.		T.		.20	.28		4.84
Langdon	Pembina	.50		.30		T.						.20	.40		.70			.20		T.		.10		.70			.40	T.				3.50
Larimore	Red																															
Lisbon	Sheyenne	.50	1.05	.10	.10	T.	.20					T.					.30				T.			T.			T.					2.25
McKinney	Mouse			T.							*	.50		.30														T.				0.80
Manfred	Sheyenne	.20	.40	.20		T.		T.			.10	.10		.20	.15		.10				.10	.05					.05	.05				1.70
Mayville	Red	.03			.05	.60									.02		.50				.20											1.40
Milnor	Sheyenne																															
Minot	Mouse	T.	T.	.01	.10			T.			.20	.10		.15	.10		.10				.01	.10	T.				T.	.01				0.88
Minto	Red	.45	.20			.43									T.		T.				.15	.05			.10			T.				1.38
Oriska	Sheyenne																															
Park River	Red																															
Pembina	....do		1.20	.30		.20	.70										.20					.20	.10									2.90
Portal	Mouse																															
Power	Sheyenne	.15		.10		.50			T.			.60								.10	.30	.10					T.	T.	T.			1.85
Pratt	Mouse											.30											.40									0.70
Towner	....do																															
University	Red		.10		.15												.20				.20							.10				0.75
Wahpeton	....do	.67	T.			.40		T.				.15									.10											1.32
Walhalla	Pembina																															
Westhope	Mouse			T.	.03	T.	.05	T.			.08	T.	T.	.12	.02		.03	.01					.63				T.	.01		T.		0.38
Willow City	....do		.10	.05							T.			.05		.10	.20				.60											1.10
Minnesota.																																
Albert Lea	Mississippi	.10	.40	T.	T.	.40					.10	.30	.10				.20				.10	T.			.10	.20	T.					2.00
Alexandria‖	....do	.04	T.	.10	.10	.20	.06					.08	.04				.20	T.		T.	.05	.04	.02	T.		.04		.06	T.			1.03
Angus	Red	.34	T.	T.		.05									.05					T.	T.	T.	T.	T.			T.	.12		T.		0.56
Bagley	....do	.09	.20	.10	.05	.70															.20	.15										1.49
Baudette	Rainy	.11	.10		.15	.68	T.		T.					T.	T.		T.		T.	.05	.10	T.	T.			.04		T.				1.23
Beardsley	Minnesota	.45	.11	.07		.13					.03	.10		.15																		1.04
Beaulieu	Red	.23	.10	T.	.14	.23	.08								T.		.04		T.	T.	.02	T.	T.	T.				T.					0.84
Bird Island	Minnesota	T.	.12	.03	.02	.21					T.	.55	T.		T.		.02				.02	T.				T.		T.				0.97
Caledonia‖	Mississippi	.03	.03	.10	.31	.05	T.				.02	.50	.10				.03				.19	T.	T.		.28		.02	T.	T.			1.66
Campbell‖	Red	.50	.70	.24	.05	.10						.10	.40				.30				.10	.20										2.69
Cass Lake‖	Mississippi			T.	.20	.45	.20														.20							.10				1.15
Collegeville	....do		.43		.04		.60					13	.02					.18									T.					1.40
Crookston‖	Red	T.	.10	.10	.05	.30	.30									T.	.10	T.		T.	.10	.20	T.	T.	.05			.20	T.				1.50
Detroit‖	....do	T.	T.	.48	.05	.05	.20		T.			T.	T.			T.		.22	T.	T.	T.	T.	T.					T.					1.60
Fairmont	Minnesota	*	.14	.20		.30					.10	.10	.15			T.	T.					.05			T.	.05	T.	T.					1.09
Faribault	Mississippi	.02	.28	T.	T.	.41					T.	.15	.02				.08				.03			T.	T.	T.	.10	.01					1.10
Farmington	....do		T.	T.	.14	.20		T.				.20	.10				.30		T.		T.	.10			T.	T.	.10					1.14
Fergus Falls	Red	.27	.16	.05	.12	.25	.05	.01	.02			.22	.06		.02		.25		T.	.04	.15	.05			.01		.01	.02					1.76
Fort Ripley‖	Mississippi	T.		.22	T.	.20	.32					T.	T.	.09			.06	.04			T.	.09	T.			T.	T.	T.	T.				1.02
Fosston	Red																															
Glencoe	Mississippi		.70	.15	.05	.50						.40	.20				.30		T.		T.	.15			.05		.08	.05				2.63
Grand Meadow	....do	.08	.07	T.	.03	.24			T.		.07	.23	.24	T.	T.	T.	.12	.02	T.		.02	.09	T.	T.	.07	.24	.14	.07	.03	T.	T.		1.76
Hallock	Red	.20	.10	T.		.20	.20								.05		.05			.02	.20							.10				1.12
Halstad‖	....do	.12	.45	T.		.30											.10				.18							T.				1.15
Hinckley	St. Croix		.50	.60	T.	.71	.20						.10									.05			T.			.10				2.26
International Falls	Rainy	T.	.50		.20	.60	.30								T.		T.	T.	T.	.10	.10	T.			.10						T.	T.	1.90
Kelliher	Red	.20	.08		.19	.75						T.			.06	T.	.03	T.	T.	T.	.10	T.			T.			T.					1.41
Lake Crystal	Minnesota	.16	.31			.21					*	.42	T.				.12					.06				.06	T.					1.34
Leech Lake Dam	Mississippi		.13	.22	.12	.80	.03								T.	T.	.07		.01	T.	.08	T.	.03		.02	.01		.05				1.57
Litchfield	....do																															
Little Falls	....do	T.	.24	.08	.05	1.20						.60	.20		T.		.30				T.	T.		T.			T.	T.				2.67
Long Prairie	....do																															
Lynd(2)	Minnesota	.36	.04	.19									.40								T.				T.							0.99
Mankato‖	Minnesota		.21	.18	.03	.37	.03					.18	.03									.05						.12				1.20
Milaca	Mississippi		.35			.60						T.							*	*	*	*	*	*	*	*	*	.97				1.92
Milan	Minnesota	.50	1.25	.03	.15	.15					.15	1.00	T.		T.				T.		T.	.02				T.	T.	T.				3.25
Minneapolis(1)	Mississippi	T.	.18	.05	.10	.81			T.		.03	.61	.06		T.		.32		T.	.02	.03	.05	T.	T.	.01	T.	.08	.03				2.38
Minneapolis(2)	....do	.02	.22	.06	T.	.58	T.		T.			.20	.12			T.	.23		T.	T.	.07	.04		T.	.02	T.	.07	.02	T.		T.		1.65
Montevideo‖	Minnesota	T.	.27	.15	.14		.21					.42	.08			.20				.02	.01	.04				.01		.02					1.57
Moorhead	Red		.02	.06	.04	.56		T.	.02			.10	.02		T.	.04	.20	.02		.02	.12	T.		T.				.04		T.			1.74
Mora	St. Croix		.20	.02	.12	.60						T.	.10				.16				.10	.10	T.				T.	.04					1.44
Morris	Minnesota	.05	.17		.20							.20					.10				.05						.05	.05	.03				0.90
New London	Mississippi	T.	.69	T.	T.	.30						.56	T.	T.	T.		.12				.01	.01		T.	T.		T.						1.69
New Richland	Minnesota	.04	.26	T.	T.	.21					.08	.35	.05		T.		.19			T.	.13	.15			T.	.07	.12	.06	T.				1.71
New Ulm‖	....do	T.	T.		.18	.45						.65	.18	.10		T.	.30	.12	.10	T.	.05	T.	T.		.02		T.						2.15
Osakis	Mississippi	T.	.29	.10	.09	.40	.01					.15	.03				.26				.10	.06				T.	.10	.03					1.62
Park Rapids‖	....do		.10	.14	.07	.25	.35									T.	.19	.02	T.		.04	.04	.04			.03			.04				1.31
Pine River Dam	....do	.25	.10	.15		.53											T.				T.												1.03
Pokegama Falls	....do		T.	.14	.17	.70						T.		T.			.06			T.	.08	.02	.01		.04	T.		T.					1.22
Red Lake	Red	.08	.08	.22	.23	.90	.15														.21	T.		T.			.06		T.				1.93
Red Wing	Mississippi	T.		T.	T.	.52	T.	T.							T.		.80				.20	T.			T.	T.	.12	T.					1.64
Red Wing (river)‖	....do		T.	T.	.04	.46	.18					T.	.20	.02		T.		.16		T.	.08	.12	T.	T.	.02	T.	T.	.10	.06				1.44
Redwood Falls	Minnesota	T.	.47		.05	.60		T.				.80					.10				.10	.05											2.17
Reeds Landing‖	Mississippi				.02	.40	.04					T.	.12	.05				.10			.02					.06		.12					0.93
Rochester‖	Mississippi				T.	.18	.06					.05	.20					.05									.06						0.60
Roseau	Rainy	.56	.14	T.	.74	T.										T.					T.	T.	T.					T.					1.44
St. Charles‖	Mississippi			.02	.02	.47	.05					.06	.25	.09	T.		T.	.13			T.	.08			T.	.22	.14		.01				1.54
St. Cloud	....do		.45		.10	.59						.13					.21				T.	.15				T.	T.					1.63
St. Paul	....do	T.	.08	.04	.10	.43			T.			.30	.12	T.			.20				.16	.01		.02	T.	T.	.04	.02			T.		1.52
St. Peter	Minnesota	T.	.70	T.	T.	.34		T.				.56	T.				T.								T.	T.	.11	T.					1.71
Sandy Lake Dam	Mississippi	T.	.12	.08	.14	.85							.03				.08				.25	.10		.04	.12			.15					1.96
Shakopee	Minnesota																															
State Sanitorium	Mississippi		.06	.22	.16	.69											.12		T.	.01	.05	.02			.02	.04						1.39
Stillwater‖	St. Croix				.14	.38	.12						*	.22			T.	.28	T.			.18		.03				T.	.20				1.55
Taylors Falls	....do	T.		T.		.10						.10	.30				.15				.10	.20				.20	.15					1.30
Wabasha	Mississippi																															

TABLE 2.—*Daily precipitation for December, 1909. District No. 5*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Minnesota—Cont'd.																																	
Warroad	Rainy																																
West Concord	Mississippi		T.	T.		.60						.50	.10																				1.20
Willow River	St. Croix																																
Windom	Des Moines	T.	.64		.14	.37					T.	.28	T.		T.							T.			T.		T.					1.43
Winnebago‖	Minnesota		.39	.15	.05	.20						.15		.20			.15					.10	T.		T.		T.	T.				1.39
Winnibigoshish	Mississippi		.02	.08	.16	.67											.07		.02	T.	.08	T.			.04	T.		.04				1.18
Winona	...do		T.	T.	.02	.58	T.	T.	T.			.15	.28	T.	T.	T.	.15	.01			.03	.02	T.	T.	T.	.14	.10	.04	T.	T.			1.52
Worthington‖	Des Moines																																
Zumbrota	Mississippi		.09		T.	.25						.40	.01				.17				T.	T.		T.		T.	.25	T.				1.17
South Dakota.																																	
Milbank	Minnesota	T.	.30	.12		.18	.08				T.	.64	1.40	.08																			2.80
Wisconsin.																																	
Antigo	Wisconsin		.15			.20	.05		T.				.15	.10	T.	T.	.05					.02			.05				.02		T.		0.79
Barron	Chippewa		T.	.10	.02	.70	.02	.05				T.	.20				T.	T.			.05	.05			T.	.05	T.		T.				1.24
Beloit	Rock		.10	.02	.11	1.10	.08	.30		.08			1.10	.78			.22				T.			T.	*	.40	.18	T.	T.				4.47
Brodhead	...do					1.01		.20			T.	.27	1.03	.40			.10								.10	.40	.20	T.					3.71
Burnett	...do		.30	*	.25	.67		T.	T.			T.	1.10	.35		T.	.11				T.		T.		*	.31	T.	T.	T.				3.09
Delavan	...do	.15		.13		1.23		.22			.02		.72	.50	T.		.06				.04	T.				.05	.31	T.	.02				3.45
Dodgeville	...do				.50	.58	.07					.23	.30	.80			.48										.32	.36	.12				3.76
Downing	Chippewa		T.	T.		.05	T.	T.	T.	T.	T.	.10	.20	.40			.40				T.	T.		T.	T.	T.	T.	T.					1.15
Eau Claire	...do		.04	.02	T.	.63			T.			T.	.34	T.	T.	T.	.10	.03			.05	.08		T.	.04	.03	.63	.04	.03				1.46
Ellsworth	Mississippi																																
Gliddon	Chippewa						.02						*	.15	.05		.10				.05	.10	.10	.05									0.62
Grand Rapids‖	Wisconsin	T.	T.	.10	.09	.39	.15		T.	T.		*	.30	.04	.01	T.	*	.02	T.			.08		T.	T.	.17	T.	T.	.01				1.36
Grantsburg	St. Croix																																
Hancock	Wisconsin		.40		.15	.55							.40	T.			T.	T.				T.			T.	T.	T.	T.					1.50
Hatfield	Black																																
Hayward	St. Croix		T.	T.	T.	.23							.10	T.			.10				.05	.15				T.		.05				0.68
Hillsboro	Wisconsin		T.	.05	.20	.15			T.			*	.80	T.	T.	T.	.20				T.	T.		T.	.60	T.	.10	T.					2.10
Koepenick	Wisconsin		.04			.72	.10		T.	T.			.50	T.	T.	T.	T.	.10		T.	T.	T.				T.			T.				1.46
La Crosse	Mississippi	.01	T.	.08	.15	.31		T.	T.		.02	.28	.20		T.	T.	.20		T.		.08	.01		T.	.21	.08	.14	.02	T.				1.79
Lake Mills	Rock		.12	.02	.34	1.14		.10	T.			.30	.70	.30	T.	.01	.10			T.	T.	.03	.02	T.	.20	.30	.05	.10	.04		T.		3.87
Lancaster	Mississippi		T.	.05	.30	.07						*	.60								.20				*	.30	.13						1.65
Long Lake	Wisconsin		.03		.03	.33	T.		.01				.07	.10	.02	T.	.05	.08			T.	.03	T.		T.	.04	.01	T.	.07		.03		0.90
Madison	Rock	.02	T.	.28	.15	.57		.04	T.		T.	.25	.96	.24		T.	.12	T.			.01	T.		T.	.26	.12	.12	.01	T.	T.		T.	3.15
Mather‖	Wisconsin		.07	.09	.06	.37	.08						.30	.21				.15				.10				.30		.10					1.83
Mauston	...do				.15	.41	.45						*	.70											.55								2.26
Meadow Valley	...do			T.		.78							.29	.05			.08	.03	T.		T.	T.	T.	.10	.12	T.	.05						1.50
Medford	Black		T.	.10			.75					.10	.05				.15												T.				1.15
Merrill	Wisconsin		.20	T.	T.	.23			T.				.02				.25				.03				.01	.10						0.84
Minocqua	...do																																
Mondovi	Mississippi		T.	.05		.46						T.	.18	.01	T.	T.	.10				.07	.07	.05	.05	.10	.05	.05	.10	.05				1.39
Mt. Horeb	Rock	.06	.02	T.	.35	.88	T.	T.				.10	.60	.10			.10				.14				.22	.10	T.		T.				2.67
Muscoda‖	Wisconsin		T.	T.	.31	.35	.20	T.				T.	.36	.24	.05	T.	T.	.22				.15		T.	T.	.30	T.	.20	.01				2.39
Neillsville	Black					1.30					T.		.12			T.	T.				.50												1.92
New Richmond	St. Croix		T.	T.		.91						T.					.43					.21			.09				T.				1.64
Osceola‖	...do	T.	.20	T.	T.	.90						.20	.08		T.		.27			T.	T.	.23			.04	T.	T.						1.92
Portage	Wisconsin			.10		.60		T.					.28		.20		.08					T.			.30		T.	T.					1.56
Prairie du Chien‖	Mississippi		T.	T.	.55	.42					.05	.12	.32	.02			.10				T.	.01			.03	.41	.02	T.					2.05
Prentice	Chippewa		.23			.24							.28		T.		.09				.04								.06				0.94
Rhinelander	Wisconsin		.07	.03		.27	.03						.06	.07	.20	.01	.01	.12			.03	.01	T.		.01	.03	.25	.01	.05		.01		1.27
Sauk City	...do																																
Shullsburg	Mississippi		.30	.20	.34	.94		.18			.05	*	1.07	.15			T.					.10			*	.37	.17	T.					3.87
Solon Springs‖	St. Croix		.70			1.50							.10				T.				.15				T.				T.				2.15
Spooner	...do			T.	T.	1.09							.12			T.	.19		T.		.07	T.				T.							1.47
Stanley	Chippewa					.54						.10	.10	.15	T.	T.	.03				.02	T.			T.	.03	T.	.14					1.11
Stephens Point	Wisconsin		.10		T.	1.00	.20						.55	.25			.20	.05								.15	.02	.06	.05				2.63
Valley Junction	...do		.21	.23	.26	.63	T.	T.	T.				.65	.10	T.		.30	.05			.10	T.		T.	.15	.20	.10	T.					2.98
Viroqua	Mississippi				.07	.58	T.	T.	T.			.17	.23	.02		T.	.07	.02			.03	.02	T.		.20	.10	.05	.02	T.				1.58
Vudesare	Wisconsin		T.		T.	.44	T.		.03	T.			.05	.05	.06	.03	.02	.06	T.	T.	.04	T.			T.	T.	.06	T.	.05	T.			0.89
Watertown‖	Rock		.32	.09	.38	.64	.18	.05				.05	.80	.45	.15	T.		.15			T.	T.		T.	T.	.35	.08	.10	T.				3.79
Waukesha (1)	Fox		.25	T.	.30	1.17		.12				.03	.50	.20		T.	.07				T.	T.			.03	.24		.05	T.				2.96
Waukesha (2)	...do		.25	T.	.32	1.43		.15				*	1.00	.10			.20								T.	.35	.10	.05					3.95
Wausau	Wisconsin		.26	T.		.18	T.		T.	T.		T.	.21	T.	T.	T.	.05	.02			T.	T.	T.	T.	.16		T.	.02				0.90
Weyerhaeuser	Chippewa	T.	.03	.10		1.00	T.		T.			T.	.01	.22		T.	.15		T.	.07	.08	.16			T.	T.	T.	.05	T.		T.		1.87
Whitehall	Mississippi			T.		.25						T.	.40	.10			.20				T.	T.				.20	T.	.20					1.35
Iowa.																																	
Albia	Des Moines	T.	.30		.30	.10	T.	.20				T.	.10	T.	T.								T.	T.	T.	.80							1.80
Algona	...do	.10	.11	.03	.10	.24					.20	.07	.05	.04	T.	T.	T.					.05			.12	.18	T.						1.29
Amana	Iowa	.21	.03	.12	.52	.33		.12			.08	.08	.25	.05			T.					T.	T.		.35	.23							2.37
Ames	Skunk	.04	.02	.03	2.00	.50	.50	1.50			.05	T.					T.								.55	.10							5.29
Baxter	...do	.06	.22	.44	.33	.20	.01	.06			.05	.08	.12	.01	.02	T.	T.					T.	.01		.40	.03		T.					2.04
Belle Plaine	Iowa	.11	.06	.11	.51	.28	.10	.15			.10	.05	.30	T.	T.	T.	.05	T.					.10		.20	.60							2.72
Bloomfield	Mississippi	.16	.38	1.16	T.	.10	.30				.10	.20	.10	.05	.02										.90				T.				3.47
Bonaparte	Des Moines	.10	.06	T.	.58	.62		.20			T.	.10	.25											.20	.30								2.41
Boone	...do	T.	.29		.42	.60		.10				.20	.10	T.	.02		T.						T.	T.	.08	.64	T.		T.				2.45
Britt	Iowa																																
Buckingham	Cedar	.13		.15	.35	.05	.01						.18												.63								1.50
Burlington	Mississippi				.11	1.50	.05	.50				.08	.50	.10	.20	.10	T.					T.	T.	T.	.05	1.20	T.	T.	T.				4.39
Carroll	Raccoon	.15	.15	.05		.20	.10				.20	.10		.10											.40								1.45
Cedar Rapids	Cedar	.06	T.	.14	.12	.02	.18				.13	.22	.11	T.	T.	T.	T.					.02	T.			.50	T.		T.				1.50
Charles City	...do	.17	.07	.17	.22	.23	T.	.01	T.			.07	.11	.12				.07		T.		.02	.05	T.	T.	.36	.05	.06	.01	T.			1.79
Clear Lake	...do	1.00	.35	T.		.10						.05	.05				T.								.20		.05					1.80
Clinton	Mississippi	T.	T.	.05		1.40		.51			.55		2.12	.20		T.	T.					.02				1.15	.10						6.10
Columbus Jct	Iowa	.12		T.	.34	.80		.15			.10	.15	.46	.08	.04										.30	.24							2.72
Davenport	Mississippi	.01		.01	.75	.65	.03	.15			.09	.40	.39	.07	.01	T.	T.	T.				T.	T.	T.	.39	.17		T.	T.	T.			3.12
Decorah	...do	T.	.08	.15	.05	.32	T.	T.			.04	.28	.18	T.		T.	.15		T.		.15	.05		T.	.42	.13	.15	.05	.04				2.24
Delaware	...do		.10		.35	.47		.03			.05	.05	.10	T.		T.						.08		T.	.21		.20					1.64
Des Moines	Des Moines	.16	.03	.56	.36	.06	.07	.01			.15	.03	.05	.01	.02		T.					T.	T.		.73	.08		T.					2.32
De Soto	Raccoon	.22	T.	.54	.59	T.	T.	.20			T.	T.			T.										.50	T.							2.05
Dows	Iowa																																
Dubuque	Mississippi	.02	T.	.17	.35	.39	.04	.01			.14	.19	.21	.03	T.	T.	.06		T.		.01	.03		T.	.30	.04	.08	.01	T.				2.08
Earlham	Raccoon	.64	.05	.55	.20	.59	T.	.20			.10	.11	T.	T.	.10		T.					.05	.05	T.	.50	.30		.05	T.				3.49
Elkader	Mississippi				.45	.53		T.				.26	.20	.09			T.				T.	.20				.62	.11						2.46
Elma	Wapsipinicon	.10	T.	T.	.14	T.					.10	.10	.05	.05		.30	.08				T.	T.	T.	.01	.20		T.	T.					1.13
Estherville	Des Moines	.30	.45	.04	.50							.20		.06																			1.55
Fairfield	Skunk	.20	.05	T.	.82	.42	.02	.14			.10	.08	.12	T.	.04						T.	T.	T.		.40			T.					2.39
Fayette	Mississippi	.10		.35	.13	.45		T.	T.		.09	.18	.28	.11		T.	.14				.02	.19	T.		.40	.30	.10	T.					2.84
Forest City	Cedar	.05	.15	T.	T.	.20	T.					.30	T.	T.			T.	T.				T.	T.	T.	.50		.20	T.					1.40
Fort Dodge	Des Moines	T.	.24	T.	.15	.20	T.	T.			.10		T.	.20	T.		T.						.05	T.	.05	.40							1.39
Ft. Madison	Mississippi				1.60	T.	.50				.10			T.	T.	T.	T.					T.						T.	T.				2.20
Gilman	Iowa	.25	T.	.30	.25	.37	.10		T.	T.	.20	T.	T.	T.			T.				T.		.20			1.20							2.87
Grand Meadow	Mississippi		.07		.28	.50		T.			.10	.10	.40				.20				T.	.10	T.	.30	.30		.10						2.45
Greene	Cedar	.12	.36	.03	.24	.22					.12	.07	.10				.08					.07	T.		.25	.15	.07	.07					1.95

TABLE 2.—*Daily precipitation for December, 1909. District No. 5*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Iowa—Cont'd.																																	
Grinnell	Iowa	.09	.20	.20	.20	.05	T.				.15	.05	.20		T.		T.					T.	T.		.45	.40							1.99
Grundy Center	Cedar	.20	.18	.15																		T.	T.		.44	.43		T.					2.65
Guthrie Center	Raccoon	.47		.33	.49	.09	.01	.05			.07	.10	.04		.13						.05				.65		.04						2.23
Hampton	Cedar	.35	.08	.30	.10	.02					.45	.05	.10			.04					T.	T.			.42								1.36
Humboldt	Des Moines	.08	.13	.04		.30					.20	.12							.07	T.													2.62
Independence	Wapsipinicon		.07			.05		.05			.40	.20	.25	T.			.20				.05	.15			1.20								2.32
Indianola	Des Moines	.20		.29	.33	.10	.05	.05			.10	.05			.05							.05	T.		.60	.40		.05					2.52
Iowa City	Iowa		.20		.30	.80	.03	.12			T.	.05	.28	T.	.06		T.	T.				T.	T.			.68							2.64
Iowa Falls	...do	T.	.27	.08	.35	.39	.10	.10	T.		.10	.45		.03	T.	.02	.05	T.				.10	T.	T.	T.	.60		T.	T.	T.			1.71
Jefferson	Raccoon	.50	T.	.02	.30	.10	.02				.02		T.		.05		T.					T.			.50	.20							2.56
Keokuk	Mississippi	.05		T.	1.18	.22	.24	.14			T.	.24	.13	T.	T.	T.	T.				T.	T.	T.		.24	.12		T.	T.				2.78
Keosauqua	Des Moines		.17		.03	1.49	.02	.15				.08	.17	T.	T.	T.	T.	T.					.02	T.	.10	.55		T.					2.66
Knoxville	...do	.17	.17	.14	.50	.53	.05	.20			.10	.05	.05		.05	T.						T.	T.		.65		T.	T.					4.00
Lacona	...do	.90	.02	.15	.48	.32		.28		.17		.20	.28									.20	.30		.40	.20		.10					3.74
La Claire	Mississippi		.03		.02	1.58	.05	.22	T.			.24	.67	.23	.02	T.	T.	T.				T.	T.	T.	T.	.63	.04		.01		T.		2.98
Marshalltown	Iowa	T.	.22		.55	.50	.05	.11				.16	.07	.13		T.	.02					T.	.06	T.	.01	1.10							1.59
Mason City	Cedar	.15	.40	T.	.04	.28					.12	.15	.05									.10			.25		T.	.05					3.38
Mt. Pleasant	Skunk	.48		T.	.55	1.11	T.	.25			.15	.02	.17	.05	T.						T.	T.	T.		.45	.15		T.					2.90
Muscatine	Mississippi		.04		.05	1.20	.03	.26				.10	.40	.08	.08	T.	T.	T.				T.	T.		T.	.60	.06		T.				2.90
New Hampton	Wapsipinicon	.10		T.	T.	T.					.08	.20	.20				T.				T.	T.			.40	.10	.15						1.23
Newton	Skunk	.10	.12	.26		.50					.11	.10	.07											.34	.25								1.85
Northwood	Cedar	.12	.21	.05	.02	.30		T.			.10	.10	.10		T.	T.	.20	T.			.05	.15			.05	.15	.10	T.					1.70
Olin	Wapsipinicon																																2.89
Osage	Cedar		.34				.50					.60	.50				.40											.35						2.25
Oskaloosa	Des Moines	.08	.11	.20	.51	.07	.22				.08	.05	.02	.08								T.		.48	.35								1.83
Pella	...do	.02	.12	.02	.50	.05		.24				.20	T.	T.								T.			.46	.22		T.					2.42
Perry	Raccoon	.15	.10	*	.57	.10	*	.10			*	.20	.20	T.	.05							.05	T.		.40	.50		T.					2.13
Plover	Des Moines	.05	.07	.01	.05	.30	T.				.20	.05	.10	T.	T.		T.					T.		T.	.10	.20	T.	T.					0.97
Pocahontas	...do	T.	.08	.10	.05	.04	.17				.12	.02	.07		T.		T.					T.			.12	.20							4.12
Ridgeway	Mississippi	.11	.15	.18	.22	.36	.01	.01	.01		.08	.08	.31		.01	.01	.34	.24	.01		.07	.23	.03	.03	.75	.25	.30	.24	.09				1.95
Rockwell City	Raccoon	.25				.30				.10	.30													.30	.70							1.65
Sac City	...do	.17	.03			.20	.25				.20	T.	.10		T.		T.								.30	.40		T.					2.61
St. Charles	Des Moines	.26		.50	.40	.07	.08				.20	.05	.03	.02								T.			.05	.95		T.					2.59
Sigourney	Skunk	.12	.10	.06	.40	.66		.11			.05	.20	.18		.06	T.						T.	T.		.30	.35							2.57
Stockport	...do	.15	.05	.01	.64	.70	T.	.14			.08	.02	.21	.01	.02	T.	T.				T.		T.		.30	.24		T.	T.				2.55
Storm Lake	Raccoon	.21			.04	.24						.13	.03										.02		.09	.11			.02				0.89
Tipton	Cedar	.08				1.18	*	.12			*	*	.47	T.	T.	T.						T.			*	1.38			T.				3.23
Toledo	Iowa		.40	.12	.34	.35	.20				.30	.20	.20				.05								.40	.40							2.98
Wapello	Iowa	.03	.04		.21	.90		.19			T.	.32	.22	.06	.01		T.					T.	T.		.24	.26							2.48
Washington	Skunk	.35		.08		.78	.08				.06		.35	.03	.06							T.			*	.80							2.57
Waterloo	Cedar	.18	T.	.43		.53		.03			.36	T.	.19	T.		T.	T.					.17			.66		T.	T.					2.55
Waukee	Raccoon	.18	T.	.55	.44	.05	.10	T.			.07	.07	.25	T.	T.	T.	T.	T.				.04	T.		.49	.06		T.	T.				2.30
Waverly	Cedar	.17	.05	.05	.10	.41	T.	T.			.25	T.	.20				.10				T.	.12	T.		.50	.30	.04	T.					2.29
Webster City	Des Moines	T.	.21	T.	.13	.20	.14				.60	.60	T.		T.		T.					.05	T.		.40	.40		T.	T.				2.73
West Bend	...do	.08	.22	.01	*	.25					.03	T.	.15				.10					.05	T.		T.	T.							0.89
Whitten	Iowa	.21	T.	.13	.45	.10		T.			.30				T.		T.					.10			.50								1.79
Wilton Junction	Cedar																																
Winterset	Des Moines	.37	.05	.40	.10	T.	T.	.10			.08	T.	.10	T.	.10		T.					T.	T.		.65	.10		T.					2.05
Zearing	Iowa	.09	.09	.25	.30	.40		.20			.20	.20	.02				.05					.20			.70	.30							3.00
Missouri.																																	
Darksville	Chariton				.85	.68	.30					.40													.30	.20							2.73
Gorin	Mississippi				.95	T.		.28				.10	.24									T.			.62								2.36
Hannibal	...do	.17				.53					.03	.34	.12	.02	.02	T.							.01		.25	.06		T.	T.				2.72
Louisiana	...do	.14			1.18	.24	.19	.12					.40			.03									.10	.20	.10						2.36
Mexico	...do	.13			.20	1.00				.20															.10	.45				.10			3.20
Steffenville	Mississippi		.54	T.		1.14	.01	.27				.30	.25	.01	T.								T.	T.	.13	.45							3.50
Sublett	Chariton	.35	.03	T.	.75	.95	.35		.20																.17	.70							3.50
Warrenton	Mississippi	2.50	T.	T.	2.75	T.	T.	.20			T.	.02													.40	.30							6.17
Indiana.		T.	.17	T.		.60		.42				.18	.21	.20	.03									T.	.08	.35	T.			.04			2.28
Collegeville	Iroquois		.19			.34		.61			*	.10	.70		.04	.10						T.	T.		T.	.98	.15						3.21
Knox	Kankakee		T.			.39	T.	.41				.10	.41	.49	.06	T.	.01					.01	.01		.04	.58	.08	.22	.06	.06			2.93
Laporte	...do		.05		T.	.34		.80		T.	.10		.81		T.	T.	T.	T.			*	.02	T.		.08	.83		.19	.14	.18			2.20
Plymouth	...do		T.			.34		.36				.12	.43	.52	.04	T.	.03					.10			.50								3.28
Illinois.																																	
Aledo	Mississippi	.05			.06	1.53		.30			.50	.03	.45	.10	.01		T.						T.	T.	.20	.41		T.	.02	T.			3.66
Alexander	Illinois	.04	T.	T.	.08	.13		.30			.02	.08	.25	.17	T.	.05						T.	.02	T.	.10	.28		T.	T.				1.50
Antioch	...do							.20			.20	1.40		.50			.20									.75		.25					3.50
Ashton	Mississippi																																
Astoria	Illinois	T.	T.	T.	.20	.50		.50			.06	T.	T.	.30	T.	T.					T.	T.	T.	T.	.35	.55		T.	T.				2.46
Aurora	...do		.23		.76	T.		.25			T.	.12	.72	.59	.03			T.				T.		T.	.60	.22	T.	T.				3.43
Beardstown	...do																																
Bement	Mississippi				.15	.20		.40				T.	T.	.20		T.									T.	1.60							1.95
Benton	...do	.05	.10			.60		.25			T.	45	.35	.50	.10								T.		.25	.10			.05				2.80
Bloomington	Illinois	T.			.13	.30		.31		T.			.33	.27	T.	.01									.28	.38		T.					2.01
Cairo	Mississippi	.20	.18		.14	.55	.23	.04			.07	1.43	.42	.22		T.							T.		.34	T.			.02		T.		3.84
Cambridge	...do																																
Carlinville	Illinois	.08	T.		.20	.21		.26			T.	.25	.23	.26	T.	T.							T.		.15	.35		T.	T.				1.99
Carlyle	Mississippi																																
Chester	...do																																
Chicago	Illinois	.01	.13		.20	.50	T.	.55			.06	.14	.84	.59	.02	T.	.04				.03	.04	T.		.24	.50	.15	.01	.13		T.		4.18
Coatsburg	Mississippi	T.			.44	1.20	.40					.10	.02			T.									.20								2.36
Cobden	...do	.15	.45		.23	.29					T.	1.75	.27																				3.14
Colchester	Illinois																																
Dakota	...do		.01		.05	1.07		.06			.03	.08	1.43	.18			.06					T.		T.	.10	.30	.03	.13	T.				3.53
Decatur	...do	.02			.15	.31		.86			T.	.05	.10	.45	T.	.01						T.	T.		.35	.10		T.	T.				2.40
Dixon	Mississippi																																
Du Quoin	...do	.08	.07		.03	.25	.25				1.90	.38	.25										T.		.33	.17			T.				3.71
Dwight	Illinois		.03		T.	.47		.42			.10	.14	.59	.42	.01	T.	T.					T.			.11	.63	T.	.02	.02	T.			2.96
Galva	...do	.01	T.	T.	.14	1.65		.29			.07	.16	.49	.16	T.	T.	T.							T.	.21	.46			T.				3.64
Grafton	Mississippi					.46	.12					.30	.20	.08											T.		.60	.30					2.06
Greenville	...do	.05	.02		.05	.57		.55			.15	.20	.05	.25	T.								T.		.20	.25		T.	T.				2.36
Griggsville	Illinois	T.			.24			.40			T.	.12	T.	.10		T.							T.		.10	.25		T.	T.				1.21
Halfway	Mississippi	.05		.23	.08	.27		.38			T.	1.35	.33	.31									T.		.11	.09			.08				3.28
Havana	Illinois	T.			.23	.30		.23					.34	.18								T.			.25	.60							2.13
Henry	...do		T.		.24	.66		.40			.03	.09	.50	.33	T.	T.									.10	.85		T.	T.				3.26
Hillsboro	Mississippi	.04	T.	T.	.08	.35	T.	.35			T.	.50	.15	.30											.04	.35							2.16
Joliet	Illinois	.02	.35	T.	.29	.33		.42			.12	.03	.53	.48	.03	T.	.02					.03			.22	.44	.13	.04	.02				3.50
Kishwaukee	Mississippi	T.	T.	T.	.10	1.30		.04			.01	.06	1.01	.29		T.	.02					.05		T.	.12	.11	.01	T.					3.23
Knoxville	Illinois	.10		.01		1.65		.64		T.		.50		.15								T.				1.10							4.18
La Grange	...do		.62			.53	.24					.20	.86	.59	T.	T.						.10			.15	.65	T.	.18	T.				4.12
La Harpe	...do	T.		T.	.16	1.18		.58			T.	.14	.09	.11	T.	T.	T.				T.	T.			.30	.36		T.	T.				2.92
Lanark	Mississippi	T.	.03	T.	T.	1.15					.15	.12	.55	.15	T.		.04							T.	.10	.25	T.	.03					2.57
La Salle	Illinois	T.	T.	T.	.79	.37	.05	.37			.26	.14	.48	.28	.01	.01	T.			T.		T.		T.	.36	.43	.06	T.	.03				3.64
Lincoln	...do		T.	T.	.11	.33		.45			T.	T.	.32	.50	T.	T.	T.					T.	T.		.20	.95							2.86

TABLE 2.—*Daily precipitation for December, 1909. District No. 5*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Illinois—Cont'd.																																	
Loami	Illinois	.06		T.	.05	.20		.28			T.	T.	.20	.30	T.	T.						T.	T.	.10	.12		T.	T.	T.				1.31
Martinton	do	.63				.25	1.00	T.			.30	.03	.85	.10	T.	T.						T.	T.		.65	.15	.04	T.	.10				4.10
Mascoutah	Mississippi	.10	.03	.01	.09	.33		.28				.94	.18	.30	T.								T.		.20	.18			.04				2.68
Minonk	Illinois	T.	T.	T.	.10	.45		.24			T.	.15	.55	.30	.08	T.	T.					T.	T.	T.	.16	.84		T.	.03	T.			2.90
Monmouth	Mississippi	.02			.36	1.91		.27			.02	.15	.38	.06	T.										.20	.46			.05				3.88
Morrison	do		T.	.03	.04	1.20	T.	.40			.25	.25	.64	.12	T.	T.	.05					.03			.20	.46			.05	T.			3.72
Morrisonville	Illinois	T.	T.	.05	.22	.20		.18			T.	.13	.15	.15	T.	T.							T.		.11	.28		T.	T.				1.47
Mt. Vernon	Mississippi		.04	.05		.25	.12	.34				.63	.45	.44											T.	.34				.15			2.81
Oregon	do				.03	1.50		.35			.05	.02	.30	.48	T.	T.	T.							T.	.15	.20	T.	.50	.10				3.68
Ottawa	Illinois		.04		.05	.71	.27				.15	.12	.70	.38		T.	T.								.15	.45	T.	T.					3.02
Pana	Mississippi	.05		T.	.04	.35	T.	.51				.18	.17	.46	T.	T.							T.		.21	.56			T.				2.53
Peoria	Illinois	T.	T.	.02	.22	.28	.05	.32			.04	.22	.32	.25	T.	T.	T.				T.	T.	T.	T.	.44	.34	T.	T.	T.	T.			2.50
Pontiac	do				.02	.40		.30			T.	.10	.60	.40	T.	T.	T.					T.			.20	1.20		T.	.10				3.32
Riley	Mississippi		.03		.08	2.32		.35			T.	.12	.86	.56			.02					.04		T.	.12	.41	T.	.12	.02				5.05
Rockford	do		.02	.01	.06	1.04	.13	.19	T.			.09	.79	.40	.15		T.	.03				.02				.33		.20	.02	T.			3.48
Rushville	Illinois	.04			1.10		.40					.13	T.	.05		T.						T.	T.	T.	.10	.50	T.	T.	T.				2.32
St. Charles	do		.32		.02	1.02		.35			T.	.12	.70	.60	T.	T.	.05					.05			.20	.80	T.	.21	T.				4.44
Springfield	Illinois	.01	T.	T.	.05	.19	T.	.21			.03	.04	.21	.25	.01	T.						T.	T.	T.	.32	.15		T.	T.	T.			1.47
Staunton	Mississippi																																
Streator	Illinois		.01		.03	.42	.08	.31	.01			.22	.35	.50	.06	T.	T.		T.				T.			.75	.08	.63	T.	T.			2.85
Sullivan	Mississippi		T.	T.	.06	.33		.60				T.	.29	.10		T.						T.	T.		.62	.36							2.36
Sycamore	do		.05		.02	1.20	.35	.35				.20	.25	.30	.10	.30	T.	.05				.15				1.10	.30	.35	.20				5.27
Tilden	do	.05	.06		T.	.44		.45				.76	.25	.33	T.								T.		.28	.16			.08				2.86
Tiskilwa	Illinois	.03			.07	1.50	.30				.10	.75	.06	.50	T.	T.	T.					T.	T.	T.	.20	1.10		T.	.05	T.			4.66
Walnut	Mississippi	T.			.01	1.78		.22			.24	.05	.80	.28	.01	T.	T.					T.			.15	.81		.02					4.37
Warsaw	do				1.53		.32																		.32								2.17
White Hall	Illinois	.09		T.	.08	.23		.35			T.	.28	.29	.20	.03	.02							.06		.13	.60			.02				2.38
Windsor	Mississippi	T.	.02	.03	.04	.40		.40			T.	.20	.04	.46		T.							.01		.20	.40			.05				2.25
Winnebago	do	T.			.06	1.30		.15			.20	.40	.50	.40		T.	.25					.08			.30	.35	.20	.08	.05				4.32
Yorkville	Illinois		T.			T.	T.	.25			.05	.05	.05	.30	.01	.02						T.			T.	.70	T.	.03	T.				1.46
Zion	Mississippi			.20		1.20		.40			.30	.30	.80	T.			.10									.30	.50	T.	.20				4.30

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 5, Upper Mississippi Valley.*

Date.	North Dakota.										Minnesota.															
	Bottineau.‡‡		Devils Lake.		Lisbon.‡‡		Minot.‡‡		Pembina.‡‡		Collegeville.		Crookston.‡‡		Grand Meadow.		Montevideo.‡‡		Moorhead.		New Ulm.‡‡		PineRiver Dam.		St. Paul.		Winnibigoshish.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	30	30	35	19	36	34	33	31—	28	28	44	37	35	34	46	35	54	40	38	31	41	23	43	12	48	38	44	36
2	18	10	19	8	23	21	20	9	18	15	43	38	25	25	49	40	43	39	32	18	37	19	46	32	46	41	39	35
3	4	4	8	0	12	10	8	5	15	− 4	43	32	13	12	42	37	22	19	18	8	23	15	40	28	41	29	36	26
4	10	− 2	2	−12	5	− 3	9	− 1	− 4	− 6	33	15	10	5	37	21	11	5	8	2	17	10	30	12	29	20	28	10
5	10	−11	− 1	− 7	2	− 2	3	−11	− 2	− 8	18	3	6	0	30	10	6	− 4	3	0	9	5	29	5	28	1	13	3
6	5	− 5	4	− 8	0	−10	5	− 8	− 6	− 8	5	− 5	7	− 2	14	0	4	− 8	1	− 5	7	− 1	12	− 5	5	− 2	6	− 4
7	− 3	− 8	− 3	−10	0	−13	1	− 9	−22	−22	2	− 7	0	−10	6	− 3	5	− 7	5	− 8	5	− 3	0	−10	2	− 3	0	−14
8	1	−15	− 4	−22	0	−12	− 2	−15	−12	−36	2	− 6	− 8	− 8	5	− 7	5	− 7	− 2	−12	5	− 5	2	− 7	5	− 8	3	−12
9	0	−25	−13	−31	− 5	−23	0	−24	− 8	−34	2	−16	− 8	−26	7	−10	5	−16	−12	−20	5	−12	− 2	−20	− 2	−14	− 1	−23
10	7	−23	4	−17	15	−20	6	−15	2	−20	9	−10	12	−23	20	− 5	19	−10	15	−19	14	−11	12	−15	20	− 6	18	−18
11	14	− 9	11	− 1	15	− 8	14	− 3	18	−12	24	0	20	− 8	26	10	25	10	22	15	20	4	26	4	27	19	20	5
12	19	4	19	9	26	− 5	21	−17	23	2	25	19	26	8	25	23	27	15	23	12	27	15	30	12	29	21	28	10
13	24	10	22	15	25	15	27	10	21	11	27	20	27	16	26	19	28	20	26	21	27	19	23	19	30	23	29	15
14	10	10	16	0	20	15	15	9	11	10	27	14	20	19	25	16	28	21	22	3	26	20	32	− 2	26	16	28	−13
15	26	− 2	27	− 4	30	− 5	30	5	10	− 5	22	1	13	− 2	21	1	18	− 4	14	− 2	20	1	34	− 3	19	4	18	− 3
16	9	0	25	− 3	7	5	10	5	− 2	− 2	15	5	6	4	24	2	5	− 5	18	− 2	14	− 1	16	− 2	17	4	13	3
17	8	− 2	3	−12	10	− 3	0	− 5	0	−18	11	− 9	4	− 2	11	− 8	7	−10	3	− 6	10	− 3	9	− 9	5	− 6	8	− 8
18	0	−20	1	−13	7	−14	5	−20	8	− 5	5	−10	2	− 5	3	−14	6	− 5	2	− 7	6	− 4	7	− 9	3	−10	6	− 5
19	6	−12	5	− 1	8	−12	2	−27	2	−10	9	−11	8	− 9	7	− 8	7	− 6	8	− 8	9	− 7	10	−10	5	−11	9	− 7
20	10	− 7	11	2	15	− 5	8	−13	8	−12	11	1	12	1	9	− 5	14	− 3	10	6	14	− 2	11	− 6	12	4	12	5
21	17	5	14	9	18	2	15	0	12	− 2	19	6	15	4	16	4	18	0	16	9	18	6	18	8	19	10	18	10
22	19	8	20	8	22	3	20	8	18	5	20	13	20	8	20	6	23	8	20	12	22	12	18	9	20	16	17	11
23	8	− 5	13	− 1	22	10	15	5	5	5	18	12	18	12	21	7	22	12	19	8	24	14	18	8	18	13	16	11
24	9	−15	3	−14	16	3	8	−13	5	− 5	25	13	12	0	22	11	17	11	10	− 7	18	15	19	12	27	15	20	13
25	6	−12	8	−18	12	− 6	18	− 8	0	−10	17	0	5	− 9	21	− 1	10	− 4	3	− 7	16	7	18	−10	21	− 4	16	− 1
26	11	− 6	9	1	12	− 8	20	8	5	− 8	17	3	25	− 7	15	− 8	19	− 3	12	− 3	21	3	10	−16	11	− 5	6	− 2
27	10	2	13	− 7	16	− 7	18	6	− 2	−10	17	0	1	1	11	− 3	17	0	12	− 6	22	− 4	9	− 4	13	3	8	−10
28	2	− 2	− 4	−21	8	− 7	6	0	− 8	−18	15	− 2	− 2	−16	10	− 8	7	− 7	0	−15	7	− 3	10	− 8	6	− 9	0	−11
29	12	−19	16	−22	15	−30	30	−25	− 4	−22	1	−21	6	−28	− 1	−16	10	−20	4	−23	21	−17	− 3	−22	− 5	−18	3	−25
30	29	− 8	31	11	32	−29	40	0	− 2	−16	21	− 9	16	−10	18	−17	37	− 5	23	3	23	−16	16	− 6	18	− 5	19	−13
31	29	9	34	18	34	12	20	18	− 4	−18	34	8	27	4	32	3	40	20	31	15	37	5	31	3	32	6	25	3
Mns	11.6	−3.7	11.2	−4.0	14.8	−3.0	13.7	−3.1	4.3	−7.5	18.7	4.3	12.0	−0.4	19.9	4.3	18.0	3.2	12.9	0.4	18.2	3.4	18.2	00.0	18.5	5.9	16.3	0.9

Date.	Wisconsin.														Iowa.											
	Delavan.		Eau Claire.		La Crosse.		Madison.		Mauston.		Spooner.		Wausaw.		Algona.		Cedar Rapids.‡‡		Charles City.		Davenport.		Des Moines.		Dubuque.		Keokuk.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	52	32	49	34	52	33	50	34	51	30	51	37	51	34	43	38	49	37	46	37	52	34	48	42	50	36	50	39
2	47	44	47	39	50	45	48	41	47	40	44	22	46	36	45	35	53	37	48	39	55	43	45	38	51	44	55	44
3	48	42	45	40	45	38	45	39	45	40	43	39	41	37	37	28	42	39	39	35	47	38	40	36	44	39	48	40
4	43	40	42	28	38	31	42	39	40	35	41	38	40	36	29	13	42	39	35	22	47	42	36	23	43	39	47	41
5	51	14	46	9	51	8	51	10	50	15	38	9	48	23	15	4	32	31	32	3	55	15	25	8	54	11	45	19
6	20	10	10	2	16	3	20	7	18	6	10	− 1	33	4	14	0	19	9	12	3	26	12	19	8	21	9	26	14
7	20	5	8	0	11	4	15	1	15	5	6	− 5	12	3	9	− 3	9	6	7	1	20	1	9	1	15	4	24	6
8	7	− 2	9	− 1	11	− 2	8	− 2	12	− 2	9	− 6	10	− 3	7	− 8	6	− 2	6	− 5	6	− 2	6	− 3	8	− 2	7	− 5
9	12	− 3	5	− 8	11	− 4	12	− 1	10	− 2	5	−11	11	1	8	− 7	12	− 2	7	− 6	10	− 2	11	− 4	14	− 2	11	− 4
10	19	− 1	19	− 6	21	− 1	20	− 3	19	1	19	− 9	22	0	16	− 1	21	− 2	18	− 1	18	6	20	7	19	5	20	6
11	28	17	28	8	30	20	29	20	28	18	27	11	25	14	26	15	29	9	28	17	29	18	29	20	29	19	32	19
12	34	27	29	23	30	26	33	27	28	25	25	21	27	22	27	22	23	20	27	32	35	27	30	26	33	29	31	29
13	34	27	31	17	30	24	31	26	29	24	31	20	31	22	28	21	29	27	26	23	33	26	28	24	30	26	30	26
14	30	20	31	18	30	19	29	17	28	20	24	16	31	22	29	22	32	26	27	21	31	24	29	22	31	22	30	24
15	24	10	22	7	24	1	21	4	27	9	21	0	24	11	24	2	22	21	13	4	27	9	23	11	26	3	27	16
16	28	− 4	11	− 1	16	2	22	− 2	18	0	16	− 1	13	0	32	6	36	6	29	6	35	8	36	5	32	3	38	12
17	19	− 3	16	− 2	16	− 5	14	− 3	9	0	15	− 7	14	8	8	− 6	6	3	6	− 4	11	0	8	− 1	12	− 5	24	3
18	7	−11	2	−12	4	−11	4	− 7	5	−12	5	− 4	13	− 8	6	−11	6	− 4	4	−10	6	− 5	10	− 4	6	− 8	12	− 1
19	10	− 9	7	− 7	9	− 6	8	− 4	7	− 8	9	−10	12	0	11	− 9	11	− 4	6	− 3	10	− 3	11	− 7	11	0	14	− 1
20	20	− 8	12	− 1	14	− 2	9	− 6	10	− 3	4	4	11	2	11	− 4	16	− 2	11	− 4	16	− 1	19	− 2	13	− 4	23	2
21	16	4	22	2	21	7	16	5	16	0	22	9	22	2	19	5	18	0	16	7	16	9	20	4	19	9	20	7
22	27	4	22	8	25	3	21	11	21	5	21	10	22	15	18	10	22	10	19	7	22	11	20	10	25	7	22	14
23	21	− 4	18	5	17	6	17	7	16	5	19	13	19	6	21	9	22	5	18	6	20	7	23	9	19	7	24	14
24	27	6	20	12	24	14	22	12	22	− 2	21	−10	19	11	29	18	26	2	24	17	27	30	30	20	25	17	30	23
25	28	21	24	10	25	2	25	14	26	18	21	− 4	28	18	20	2	23	21	21	− 6	28	3	20	1	26	5	29	13
26	23	− 1	11	− 7	10	− 5	14	− 2	22	− 8	10	−10	25	− 1	22	− 3	13	− 3	13	− 8	14	− 5	23	0	12	− 2	22	− 2
27	14	− 4	14	6	16	4	13	2	15	− 5	12	− 3	16	− 5	22	2	20	− 7	17	1	14	3	25	11	15	0	22	10
28	13	1	10	− 2	8	1	9	− 1	12	− 3	7	− 8	16	− 1	17	− 2	14	9	16	− 6	19	− 1	22	− 2	17	− 1	22	5
29	8	− 9	8	−10	3	−10	2	− 8	4	− 5	4	−21	14	− 6	1	−15	− 1	− 8	− 6	−16	− 1	−10	− 1	−12	3	−11	5	− 7
30	8	−17	16	−10	18	− 9	10	− 8	11	−17	13	− 9	10	− 7	30	− 6	19	−13	20	− 7	17	−10	32	− 2	15	−11	29	− 9
31	29	− 7	24	0	26	1	24	− 1	26	− 4	23	3	25	− 3	37	18	34	− 1	32	4	34	13	38	24	26	0	41	24
Mns	24.7	7.8	21.3	6.5	22.6	7.7	22.1	8.8	22.2	7.3	20.2	4.3	23.6	9.5	21.3	6.3	23.0	10.0	19.9	6.5	25.1	10.6	23.7	10.1	24.0	9.3	27.7	13.6

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 5*—Continued.

Date.	Hannibal, Mo.		Laporte, Ind.		Illinois.															
					Cairo.		Greenville.		La Salle.		Monmouth.		Mt. Vernon.		Peoria.		Springfield.		Winnebago.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	52	42	54	30	56	47	55	38	55	34	51	35	61	33	56	38	55	36	53	31
2	56	39	48	38	58	46	53	46	54	48	56	44	56	40	53	46	53	43	53	44
3	52	38	52	35	57	46	56	54	49	41	48	34	56	40	50	40	51	38	47	37
4	52	44	55	42	72	51	58	46	53	47	47	43	63	47	58	45	58	46	45	41
5	57	19	54	19	61	31	57	24	55	20	53	18	63	34	58	19	59	21	54	14
6	28	17	32	16	45	26	35	20	26	16	25	13	36	20	29	16	30	20	23	11
7	24	1	28	4	34	18	33	6	24	3	23	7	28	20	23	0	29	5	20	4
8	8	− 2	7	− 4	23	12	8	− 1	6	0	7	− 3	23	4	6	− 3	8	− 1	6	− 3
9	13	− 4	8	− 4	25	8	12	− 3	11	0	11	− 4	19	0	9	− 4	11	− 2	10	− 4
10	28	5	6	− 1	36	20	28	5	18	5	19	3	43	3	22	1	26	6	18	− 1
11	34	28	28	14	45	36	35	28	29	18	28	19	40	13	32	22	34	26	28	15
12	33	26	36	25	46	29	35	28	35	29	34	28	43	33	35	31	35	28	33	28
13	30	26	38	28	32	28	28	26	34	27	32	27	33	23	31	27	31	27	33	27
14	32	26	29	21	43	30	32	28	31	24	30	24	36	28	30	25	33	27	30	18
15	27	17	25	18	34	28	29	22	27	10	27	14	29	21	26	9	27	15	23	7
16	40	12	31	1	45	24	37	29	35	7	35	7	40	18	35	7	37	11	30	− 3
17	14	6	31	.....	37	20	29	10	12	2	25	1	29	15	12	0	17	7	18	− 5
18	14	2	11	.....	20	14	15	3	9	− 3	10	− 4	19	5	9	− 4	12	2	3	−12
19	18	1	12	− 5	23	15	21	5	14	0	13	− 5	24	8	13	− 4	15	3	10	− 7
20	25	8	.....	.....	33	15	27	8	16	0	20	− 1	33	7	18	− 1	23	7	10	− 7
21	22	11	.....	.....	36	19	25	15	16	11	17	6	34	9	15	8	20	12	14	4
22	23	18	.....	.....	29	22	25	16	24	12	24	14	23	15	24	15	24	16	19	4
23	27	18	.....	.....	32	19	27	18	20	7	20	9	33	19	20	17	23	18	20	− 1
24	32	27	.....	.....	33	30	32	25	27	19	28	19	32	19	28	19	31	20	23	14
25	32	7	.....	.....	34	20	30	16	28	9	27	13	28	25	28	6	31	10	26	17
26	26	− 2	.....	.....	30	14	18	1	14	3	15	− 5	28	16	17	− 5	25	0	17	− 6
27	23	13	.....	.....	33	26	26	12	17	0	12	5	30	8	17	3	19	10	12	− 7
28	24	2	.....	.....	32	15	25	6	18	3	20	4	16	15	21	0	23	5	11	4
29	4	− 7	.....	.....	16	5	6	− 4	7	− 9	4	− 8	14	− 3	4	−11	5	− 5	5	−12
30	30	− 5	.....	.....	30	4	23	− 6	13	−10	19	−11	30	− 2	15	−12	19	− 7	12	−14
31	43	21	28	− 2	47	29	38	20	32	3	35	13	43	2	35	10	40	18	27	− 2
Means	29.8	14.6	.....	.....	38.0	24.1	30.9	17.5	26.1	11.9	26.3	11.6	35.0	17.3	26.7	11.6	29.2	14.9	23.6	7.6

Climatological Data for December, 1909.

DISTRICT No. 6, MISSOURI VALLEY.

J. WARREN SMITH, District Editor.

GENERAL SUMMARY.

December was one of the coldest months on record in the Missouri watershed, and the coldest December ever experienced over the greater part of the district. There were three main high pressure areas that dominated the conditions. The first appeared over the upper Rocky Mountain region on the 2d, the second moved from the North Pacific on the 14th, and the third moved from Manitoba almost directly south on the 28th and 29th.

Four well-defined low pressure areas moved across the southern part of the district from the lower Rocky Mountain region while only one large area came from the Northwest. This appeared over the upper Rocky Mountains on the 29th and caused comparatively mild weather in the upper watershed on that date and over the rest of the district on the 30th and 31st.

But from the time that the first cold wave appeared in the Northwest on the 2d until the northwestern depression exerted its moderating influence on the 29th the northern States experienced steady, cold weather, while the rises in temperature that spread over the southern States from the southwestern storms were of comparatively short duration.

The precipitation was very largely in the form of snow and was greater than usual in December. In most eastern States the snowfall was the greatest ever recorded in December. The ground was covered with snow throughout most of the month, because of frequent snowstorms, low temperature, and general lack of sunshine. In Montana the snow was fairly well packed in the mountains at the close of the month, but was not drifted. In Wyoming there was a good depth of snow over the State. In Colorado the snowfall was heavy and drifted badly. The snow storage conditions were good at the upper levels, but the snow was not well packed at the lower levels because of the intense cold.

Northwest winds prevailed. The wind movement was high in the mountains in Colorado, and the average daily velocity was slightly greater than the normal in Nebraska.

There was much more cloudy weather than is usual in this month.

The following information is from the reports of the Section Directors in each State:

Wyoming.—The month was one of the coldest Decembers on record, the greatest departures of the mean temperature from the normal being found at the lower valley stations. The lowest mean temperature was 5.8° at Basin, which is located at one of the lowest portions of the State at an elevation of about 3,800 feet, while the highest mean temperature was 20.2° at Granite Canon, which has an elevation of more than 7,300 feet. Chinook conditions prevailed over much of the State on the 1st, 30th, and 31st, but low temperatures obtained during most of the month. The precipitation was unevenly distributed, but over most of the State the snowfall was in excess of the normal. The continued cold weather prevented much melting of the snow, and the great depth remaining on the ground made the month one of the severest on range stock in the history of the State. In many districts where the stockmen had provided for winter feed it was found impossible to move stock to the feed, or to get the fodder to where the stock were ranging. The central and northern portions of the State suffered more than the southern portion in this respect. All stock have lost flesh rapidly and are not in good condition to stand further severe weather.

Montana.—The month was abnormally cold with nearly the usual amount of precipitation. It was the coldest December for 15 years over the State as a whole, the coldest previous to this being in 1902 when the mean was about 3° higher. The warmest section was immediately east of the Continental Divide. It was from 5° to 8° warmer in the upper parts of the Milk and Yellowstone River valleys than in the lower. The only extended period of mild temperatures was from the 11th to 16th, but this brought no marked chinook conditions, and very few days with the temperatures above freezing. The precipitation was somewhat in excess of the normal over the upper river valleys, but there was a deficiency over the larger part of the State. Practically all was in the form of snow. In most sections the ranges became covered early in the month and remained so till the close. Stockmen were at a disadvantage, but there was little loss of stock. Railroad traffic was somewhat delayed from the 5th to 7th on account of drifting snow and extremely cold weather. The wind movement was below the normal except at Havre. There was more snow than usual in the Gallatin and Bridger mountains in the Gallatin drainage basin at the close of the month. The snow was not drifted so much as usual, and while the drifts were mostly compact they were not solid from freezing and thawing. Snow accumulated to the depth of several feet at high altitudes in the Jefferson drainage basin. The December fall was above the average. There was 6 to 10 feet of snow above 8,000 feet elevation in the Madison drainage basin. The snowfall was above the average here, and heavier as a rule than in 1908. In the Musselshell drainage basin the December snowfall was deficient in the Judith, Crazy, and Snowy mountains, but was above the normal, as a rule, in the Little Belt and Castle ranges. The snow in many sections was solidly packed, and the drifts thickly crusted from thawing and freezing. From 2 to 4 feet of snow lay on the ground above 7,000 feet elevation in the Sun River drainage basin, and the drifts were fairly compact. There was more snow generally over the upper Yellowstone drainage basin than at the close of December, 1908. The snowdrifts were well packed, but not icy. The ground was moist and frozen under the snow in most of the mountain districts.

North Dakota.—The weather during the month was cold, stormy, and disagreeable. The mean temperature was nearly 10° below the normal and was the lowest ever recorded, except in 1893. The precipitation was 0.61 inch above the normal and, except on the 1st and 2d, was all in the form of snow. The snowfall was the heaviest ever recorded during any December since this service was established in 1892. Owing to the heavy snowfall there was considerable delay in traffic, and the abnormally low temperatures made the work of opening the highways doubly difficult. Live stock suffered greatly owing to the heavy snowfall and intense cold combined. All elements considered, the month was the severest in the history of the climatological service in the State. There was less than the usual amount of sunshine, and as few temperatures above the freezing point were recorded, much snow remained on the ground at the close of the month.

South Dakota.—The weather, on the whole, was very unfavorable for all kinds of outdoor work. The temperature averaged the lowest for December in 20 years. Compared with the 19 preceding years, there has been none with a lower maximum and only 6 with a lower minimum in December. The precipitation was about 1.10 inch above the normal and was the greatest for December in 20 years. The snowfall averaged 15.6 inches and amounted to 59.3 inches at the Hardy Ranger Station in the Black Hills, at an elevation of 6,600 feet. Snow occurred frequently but there were no specially heavy falls, except in parts of the Black Hills district on the 11th. The depth of snow on the ranges, which are usually in suitable condition for winter grazing in December, caused some suffering to live stock and necessitated much unexpected feeding. Owing to the cold weather and drifting snow the railroads in all parts of the State experienced much delay in operating trains, especially freight, and in several instances passenger trains were temporarily suspended. The wagon roads were so bad also that the receipt of grain at the elevators was much less than usual for this month. The month closed with much corn remaining in the fields. Outside mining, prospecting, and development work in the Black Hills district was practically suspended. There was much less than the normal amount of sunshine.

Colorado.—The month was remarkable for the steady and severe cold, and the mean temperature for the State was the lowest ever recorded; the lowest previous mean was in February, 1903. The mean for the northeastern portion was 11.7° below the normal. The deficiencies were somewhat less at the higher levels than at the lower. The deficiency in the day temperatures was greater than that in the night temperatures. The amount of temperature inversion, which usually accompanies cold spells, was less than usual. The precipitation was slightly above the normal. The snowfall was heavy throughout the greater part of the mountains; at the close of the month its condition was generally good at the higher levels, but lower it was not well packed, owing to the excessive cold. There was much drifting of the snow and the mountain passes were blocked for considerable intervals. Very considerable loss resulted from the severe cold. Railroad traffic was maintained with difficulty, and at heavy expense.

Nebraska.—This was the coldest December ever recorded at most stations in Nebraska. The mean temperature averaged more than 12° below the normal and was 7° below the normal for January and 10° below the normal for February. The month was one of the 10 coldest months, including January and February, during the past 35 years. The precipitation was 1.19 inches above the normal. The snowfall was the greatest ever recorded in December. The wind was light and the snow did not drift at all badly; nevertheless the snow and low temperature interfered somewhat with transportation. All trains were delayed more or less, but none of the main lines were seriously blocked. On the branch lines, in some instances, the trains were

blocked for 1 or 2 days. The street cars in both Omaha and Lincoln were much inconvenienced and cars ran irregularly on many days. The first fall of snow occurred early in the first week and the ground was covered practically all the month. Some loss of stock has resulted, although most men have been feeding regularly. This has caused a decided rise in the price of feed, especially hay. The severe weather greatly retarded all building operations; usually this work can be continued during most of December. The average wind velocity was about 0.3 mile above the normal.

Iowa.—December, 1909, will be noted for its low temperature, excessive cloudiness, and the frequency of snowstorms. It was the coldest December since State-wide observations began in 1890, and probably the coldest since 1876. The weather was almost continuously cold from the 3d to the last day of the month. The precipitation was above the normal and was mostly in the form of snow after the 5th. The snowfall, although of frequent occurrence, was generally light, except on the 24th. The fall was from 5 to 13 inches on this date and all freight trains and Christmas passenger traffic were delayed, although no trains were stalled. A sleet occurred on the 4th, which covered the ground with a thick coating of ice and made a good foundation for the snow that followed, and excellent conditions for sleighing. The heavy snow and severe cold weather put a stop to all drainage work,and has prevented the belated corn harvest. Much of the corn is lying on the ground and is covered with ice and snow. On account of not being able to turn stock into the fields where the corn is not yet gathered, farmers have been obliged to feed more hay than usual. The snow has furnished a good blanket for the protection of meadows, alfalfa, and winter grains, all of which are reported to be in excellent condition.

Kansas.—The month was cold, cloudy, and wet. It was the coldest December on record. The temperature was above the normal on the first 3 and last day of the month, but below the normal the rest of the time. The average precipitation, 1.70 inch, has seldom been equaled, and was 0.92 inch above the normal. There was a slight deficiency, however, over part of the headwaters of the Solomon and Smoky Hill rivers. The precipitation occurred principally during the first week and from the 22d to 24th. There was a general sleet storm on the 4th, which, in the eastern counties, was accompanied by much thunder. From 4 to 8 inches of snow fell on the 6th, making a protection for the wheat from the cold weather that followed. More snow fell on the 24th, making from 8 to 15 inches of snow for the month. The snow has seriously interfered with corn gathering. The sleet and snow materially interfered with traffic by railroad, interurban lines, and wagon roads, and some damage was done to perishable goods by the enforced delays

Missouri.—This was the coldest December of which there is any authentic record. The month was remarkable rather more for its low and stable mean temperatures than its minima. There were 3 zero periods in the Ozark region and 4 north of the Missouri River. The precipitation was uniformly distributed and was generally in excess of the normal. After the 5th all precipitation was in the form of snow or sleet. Snow was continuously on the ground from the 5th to 30th inclusive. Transportation was impeded and for short periods suspended. The cold weather had a favorable effect on the dry goods and clothing business, but was rather unfavorable to commission and railroad shipments, as perishable goods could not be handled during a considerable part of the month. Wheat entered the winter in excellent condition and was well protected by snow in December. The month was unfavorable for outdoor work, but favorable for outdoor sports. Sleighing and skating were the finest in many years and were continuous for 3 weeks. There was a marked deficiency in the sunshine. The relative humidity was about 6 per cent higher than the average.

TEMPERATURE.

This was the coldest December ever recorded in practically all parts of the Missouri watershed. In the northwestern States the first and last 3 days were comparatively mild, and in the southeastern States the first 3 and last 1 or 2 days were warm. Cold weather prevailed during the balance of the month. The highest temperature recorded was 78° at Fort Morgan, Colo., on the 31st, at an elevation of 4,319 feet above sea level. The maximum was above 50° in all of the States and 60° or above in all but Montana, North Dakota, and Iowa. The minimum temperature was −38° at Grayling, Mont., on the 17th. The minimum was lower than −20° in all of the States, except Missouri and Kansas.

PRECIPITATION.

The precipitation was above the normal, except in parts of the upper watershed. It was heaviest on record for December in South Dakota. The greatest amount for the month was 6.17 inches at Sublett, Mo. The greatest fall in any 24 hours was 2.75 inches at Sublett on the 4th. Most of the precipitation was in the form of snow and in some of the eastern States in the district the snowfall was the heaviest ever recorded in December. The greatest snowfall was 59.3 inches at Hardy Ranger Station, S. Dak. The snowfall was over 2 feet at some stations in each State, except in Kansas and Missouri. The cold weather and lack of sunshine caused the snow to remain on the ground during practically all of the month in all districts.

RIVERS.

The small tributaries of the Gallatin and Madison rivers in Montana carried more than the normal flow of water. The main stream and many of the tributaries of the Yellowstone were at a lower stage than usual. The flow of the Missouri River at Helena was about normal. The principal streams in South Dakota were frozen over early during the month. In Kansas the different rivers froze over between the 4th and 7th and remained frozen during the month, except that the Kansas River was open from the 14th to 20th.

Floating ice appeared in the Missouri at St. Joseph, Mo., on the 4th, at Kansas City on the 7th, at Hermann on the 9th, and in the Mississippi at St. Louis on the 10th. Heavy ice was running at Kansas City on the 9th and gorges formed on the 17th. During the last week of the month the river was practically frozen over at Kansas City, there being only small areas of open water. Navigation was suspended at St. Louis on the 16th, except the movement of ferry boats, and on the Missouri River at Hermann on the 18th. The Terminal Transfer boats operated at St. Louis until the 29th.

An ice gorge was reported in the Mississippi River near Chester, Ill., on the 22d. This held the ice floes, and the gorge gradually built up stream until the local harbor at St. Louis was filled on the last day of the month. Other gorges formed above the city, and, starting down with the rise in water on the 31st, the ice carried out the false work at the McKinley bridge at St. Louis. There was no loss of life, but the damage to the structure was considerable, and several months delay will occur in the completion of the work.

Work at the Holter dam in the Missouri River in Montana was seriously interfered with by floating ice. Work on the bridge at Kansas City was suspended near the close of the month as the barges could not be kept in the river because of the floating ice.

The division engineer of the Missouri Pacific Railway Company reports that their river protection work on the Missouri River between St. Louis and Kansas City was stopped because of unfavorable conditions. The first part of the month there was so much floating ice in the river that barges and small craft could not be handled and later in the month the river was frozen too much for work.

MISCELLANEOUS.

A number of large private irrigation projects are being planned for Montana, the work to be begun next summer. One near Dillon contemplates the irrigation of about 80,000 acres, and permits have been issued for reservoirs in the Jefferson forest reserve on the Musselshell River that will irrigate over 30,000 acres.

The ice on the rivers and ponds froze to an unusual thickness for this month and good crops of ice were harvested, even as far south as Missouri.

There was a pronounced shortage of natural gas in western Missouri and eastern Kansas with the storm and cold wave on the 6th. The schools were closed at St. Joseph, Mo.

Plans are being carried out for the completion of the straightening of the Nishnabotna River in western Iowa and Missouri. This ditch starts in Carrol County, Iowa, and will extend for about 100 miles when entirely completed.

Work in connection with washing away of excavated material with the use of a pump and long pipe was suspended at St. Mary Reclamation Project in Montana on the 10th because of unfavorable weather. Work was suspended also at the Huntly and Sun River projects because of the cold and the freezing of the ground. At the Belle Fourche Project in

South Dakota nothing could be done on the great dam, and it was with the greatest difficulty that any work could be kept open.

The forest supervisor of the San Isabel forest reserve in Colorado reports that snow fell almost continuously from December 1 to January 3. Logging, examination of claims, etc., were interfered with. The supervisor of the Arapaho forest states that for a period of over a week during the middle of the month the temperature fell each morning to −38° to −48° while the lowest registered was −60°. The supervisor of the Las Animas National Forest at La Veta, Colo., states that the total snowfall at the upper ranches near the Spanish Peaks and the upper Cucharas is now 78 inches. Considerable of this has drifted into the canyons where it is freezing and getting solid. The heavy snowfall accompanied by an occasional wind has caused all roads, trails, and even the open fields to be impassible for all travel, except snow shoes, on at least two-thirds of the forest. The cutting of timber either under free use permit or sale has been entirely stopped on account of the severe weather conditions.

The Horticulturalist of the Experiment Station at the University of Missouri, Prof. J. C. Whitten, has sent the following very important letter regarding the possible damage to fruit buds because of the severe weather in December following the unusually mild and wet November:

> We have been making a very careful examination of the buds on our experiment station grounds since this cold spell, and I am glad to report that thus far they remain practically uninjured. Of course, our peach trees set many times as large a number of fruit buds as are needed for a full crop of fruit. In any weather, no matter how favorable, some percentage of these fruit buds will be killed or weeded out by weather conditions.
>
> The last observation which we made, January 4, showed that not more than 5 per cent of the fruit buds of hardy varieties have been killed this winter, and only 15 per cent of the tenderest varieties, like Alberta, have been killed. This is a smaller percentage of fruit buds than are usually killed up to this time, even in our most favorable winters. I would have to say then that at the present writing there has been less injury to fruit buds of all kinds on our experiment station grounds this winter than has ever before been the case at this time of year during the 15 winters that I have been at Columbia.

THE UNITED STATES WEATHER BUREAU IN THE WORK OF THE ENGINEER.

J. A. OCKERSON.

The engineer engaged in works for the improvement of the navigation of streams, the control of floods, or the drainage of lands is always deeply interested in precipitation records as reflected in the stage of streams, the run-off of a given watershed, or low temperatures which may result in ice.

In planning construction work of any kind within the high water banks of a stream, the engineer speculates on the probable date when the stage of the river will be such as to enable actual work to begin and how long a season of suitable stage he may reasonably expect. He must also reckon with the temperature conditions which produce ice, the probable duration thereof, and the months between November and March, when it is most liable to occur.

In dredging for the maintenance of low water channels the engineer gives consideration to the stages of the contributing tributaries in order that he may approximate the time when actual work should begin; and near the end of the low water season he studies the increase in stage and causes thereof in order to determine whether or not higher stage conditions are to be permanent. The date of the return of the dredges to winter quarters depend on this decision.

In the construction of levees for flood control study is given to the probable crest of a coming flood from the time it starts at the headwaters of the tributary streams, and the work is shaped as far as practicable so that the new embankment may not be overtopped and seriously damaged.

Before the drainage engineer can reach an intelligent conclusion as to the size of ditches required in a given district he must study carefully all available records as to rainfall and run-off in the area to be drained.

The irrigation engineer in the same way arrives at the amount of water which he can probably store for use during the dry season.

Railway engineers must know areas of watersheds, the maximum rainfall, and run-off in order to determine the size of culverts required to safely pass flood volumes.

The city engineer must be acquainted with similar facts in order to design sewers that will be of sufficient size to carry off surface drainage due to rainfall.

So it will be seen that the observations of the Weather Bureau touch the work in all branches of engineering, and reliable records of rainfall and temperature are of great value to the engineer.

It is important that such records be continued and that the number of stations be increased so that more rainfall measurements would be available for use in predicting stages in the streams of the minor basins.

It would also be well if attention could be given to run-off, especially in cases of rainfall of unusual magnitude.

The field of work occupied by the United States Weather Bureau is of great importance and value to the engineer, and as such it has won the confidence of the profession at large and is entitled to the assistance and support thereof.

TABLE 1.—*Climatological data for December, 1909. District No. 6, Missouri Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Wyoming.																				
Arapahoe	Fremont										1.40		0.75	18.0	4	21	6	4	nw.	David Malloy.
Barnum	Johnson	5,500	4																	
Basin	Big Horn	3,856	10	5.8	−12.3	40	32†	−27	24†	41	1.37	+ 1.08	0.60	13.0	7	15	4	12	nw.	Thos. Freeguard.
Bennett	Carbon																			O. J. Robertson.
Cheyenne	Laramie	6,088	38	19.2	− 9.8	56	30	−13	6	34	0.66	+ 0.35	0.27	7.7	11	11	13	7	nw.	Chas. C. Young.
Cheyenne Exp. Farm	....do	6,000	3																	U. S. Weather Bureau.
Chugwater	....do	5,282	8	14.2	−13.9	70	1	−23	7	54	1.30	+ 0.35	0.40	13.0	6	23	8	0	w.	Irrigation Inves. Office.
Clark	Big Horn	4,320	4																	George Milne.
Crystal Lake Reservoir	Laramie	6,900																		Chas. A. C. Snow.
Douglas	Converse	4,793																		L. E. Jenson.
Dubois	Fremont	6,909	3																	Henry C. Miller.
Eaton's Ranch	Sheridan	4,600	4	18.9[d]		58[d]	31	−22[d]	6†	35[d]	5.00[d]		1.00[d]	50.0[d]	10[d]	12[d]	11[d]	4[d]	e.	Dr. F. H. Welty.
Echeta	Crook										1.98		0.64	24.0	7	19	4	8	n.	F. A. Eaton.
Elk Mountain	Carbon		4								1.85		0.51	37.0	7					M. R. Hunter.
Encampment	....do	7,322	....	15.1		43	30	−25	18	28	0.28		0.09	.....	9	16	5	10	sw.	Wm. Richardson.
Ervay	Natrona																			U. S. Forest Service.
Fillmore	Albany	7,527	3																	Frank Jameson.
Fort Laramie	Laramie	4,270	32	12.2	−15.3	52	31	−24	5†	52	0.44	− 0.02	0.14	.....	6	12	13	6	w.	Jas. Dougherty.
Gillette	Crook	4,546	3	13.2		39	31	−18	7	27	2.30		0.60	23.0	10	17	4	10		John Hunton.
Granite Canyon	Laramie	7,337	4	20.2		50	31†	−15	21	40	0.74		0.20	7.5	7	21	7	3	nw.	S. D. Perry.
Hunter's Station	Johnson	8,000	3	10.9[i]		42[i]	9	−21[i]	5	42[i]	1.85[i]		0.54[i]	27.0[i]	7[i]	14[i]	2[i]	5[i]	w.	Wm. Boyce.
Hyattville	Big Horn	6,632	10	12.7	−13.2	45	1	−19	7†	40				8.0	....	17	7	7	w.	August Hettinger.
Independence	Natrona																			Wm. Booth.
Kaycee	Johnson		8																	Henry D. Schoonmaker.
Kirtley	Converse		5	13.8		44	31	−19	5	36	1.36		0.30	21.0	5	15	9	7	nw.	A. Grigg.
Kirwin	Big Horn	9,187	1																	D. M. Zum Brunnen.
Knowles	Crook										2.42		0.47	28.1	10					C. L. Tewksbury.
Lander	Fremont	5,372	17																	G. A. Knowles.
Laramie	Albany	7,188	18	14.2	− 8.2	46	31	−23	18	40	0.24	− 0.07	0.10	2.5	5	10	11	10	s.	U. S. Weather Bureau.
Leo	....do	6,878	8	13.9[b]	− 8.6	38[b]	31	−21[b]	21†	48[b]	0.90[b]	− 0.23	0.22[b]	.....	12[b]	5[b]	9[b]	15[b]	w.	University of Wyoming.
Lolabama Ranch	Big Horn	7,052	6	15.4		34	10	−24	5	53	0.28		0.20	3.5	2	17	8	6	w.	C. A. Cowdin.
Lovell	....do		4	9.6[a]		45[a]	1	−24[a]	24	37[a]	0.18[a]		0.06[a]	3.0[a]	4[a]	10[a]	12[a]	8[a]	n.	Mary E. Painter.
Lusk	Converse	5,007	19																	R. Fred Harrison.
Luther	Laramie	....		15.8		58	1	−16	5	45	0.90		0.40	11.0	3				nw.	D. E. Goddard.
Manville	Converse	5,050																		Henry D. Colburn.
Moorcroft	Crook	4 211	6																	C. A. Sherman.
Moore	Albany	6,000	8																	Jas. K. Somers.
Newcastle	Weston	4,319	2	13.2		52	31	−18	7	32	1.65		0.30	16.5	9	18	7	6	n.	Edwin Moore.
Pathfinder	Natrona	5,735	3	13.6		41	31†	−16	20	41	0.59		0.20	8.0	6	16	3	12	sw.	Dr. S. W. Johnson.
Phillips	Laramie	4,900	6	19.0		47	30	−20	5†	41	1.00		0.20	10.0	7	18	5	8	nw.	U. S. Reclamation Service
Pine Bluff	....do	5,038	9																	Mrs. Arthur Rugg.
Powell	Big Horn	4 376	2	9.2		39	13	−22	24	35	0.31		0.09	7.0	4	15	11	5	w.	C. W. Johnson.
Riverton	Fremont		2																	U.S. Reclamation Service
Saratoga	Carbon	7,300	12	14.4	− 8.2	41	31†	−30	18	40	0.51	− 0.85	0.15	.....	7	9	10	12	e.	Robert P. Quest.
Sheridan (1)	Sheridan	3,790	14	10.2	−14.0	54	31	−27	5	48	1.25	+ 0.58	0.36	26.5	11	8	17	6	nw.	Supt., S. & E. R. R.
Sheridan (2)	....do	3,738	14	10.8	−14.0	53	31	−28	5	48	2.50	+ 0.58	0.80	44.0	7	10	14	7	nw.	U. S. Weather Bureau.
Shoshone Dam	Big Horn	5,385	3	18.3		45	30	−16	7	31	0.33		0.16	41.0	4	14	10	7	e.	Geo. Brundage.
Soldiers' Home	Johnson	4,635	17	17.2	−10.0	52	30	−21	7	43	3.10	+ 2.51	0.80	31.0	9	10	16	5	nw.	U. S. Reclamation Service
South Pass City	Fremont																			Geo. L. Courtney.
Thermopolis	....do	4,350	7	7.4		43	31	−30	5	39	1.00		0.35	11.5	6	16	10	5	n.	John Sherlock.
Upton	Weston										1.59		0.32	16.1	12	7	12	12	nw.	A. L. Duhig.
Valley	Big Horn	6,500	....								0.09		0.08	2.2	2	16	14	1	e.	G. E. McPherren.
Verona	Sheridan										2.10		0.80	22.0	8	1	18	12	nw.	Jas. L. McLaughlin.
Wiley	Big Horn	5,375																		O. A. Roode.
Wyncote	Laramie	4.207	2	16.6		55	31	−24	5	37	0.37		0.16	4.0	3	10	15	6	nw.	C. D. Marshall.
Yellowstone Park	National Park	6,200	22	12.4	− 9.2[z]	36	9	−16	21	25	1.27	− 0.55	0.46	14.6	18	5	12	14	s.	U.S. Reclamation Service
(1) Fountain	.....do																			U. S. Weather Bureau.
(2) Grand Canon	.....do																			U. S. Army.
(3) Lake Hotel	.....do	7,733	5																	Do.
(4) Norris Geyser	.....do	7,525	5																	Do.
(5) Riverside	.....do	6,500	3																	Do.
(6) Soda Butte	.....do	7,000	4																	Do.
(7) Sylvan Pass	.....do	7,000	2																	Do.
(8) Thumb	.....do																			Do.
(9) Tower Falls	.....do																			Do.
(10) Upper Basin	.....do	7,395	5																	Do.
Montana.																				
Adams	Dawson		1	10.1		42	30	−22	8	39	0.15		0.03	5.5	8	4	8	19	nw.	W. B. Ennis.
Adel	Cascade	5,200	11	17.8		44	12	−24	7	53	2.45		1.50	24.5	6	13	2	16	w.	B. F. Burch.
Agricultural College	Gallatin	4,700	10	12.4	−12.6	45	31	−23	7	37	0.90	− 0.18	0.30	.....	8	3	16	12	se.	Prof. E. Burke.
Augusta	Lewis & Clark	4,071	10	16.2	−12.1	50	12†	−31	7	56	0.59	+ 0.06	0.12	5.9	7	17	4	10	w.	C. C. Covington.
Babb	Teton	4,461	4	15.8		42	29	−29	7	34	1.25		0.80	12.0	4	14	12	5	sw.	U. S. Reclamation Service
Bald Butte	Lewis & Clark	6,500	....								0.91		0.15	21.9	12	7	5	19		M. W. Alderson.
Big Creek	Park	5,800	....								1.17		0.32	10.0	6	10	13	8	w.	Peter Vink.
Big Timber Creek	Sweetgrass	4,070	....	18.6[d]		48[d]	30	−30[d]	5	40[d]	0.23		0.22	.....	2	27[c]	0	1[c]	w.	W. H. Patterson.
Billings	Yellowstone	3,115	15	12.8[a]	−15.5	46	1	−30[a]	5	61[a]	0.51	+ 0.17	0.40	.....	3					U. S. Weather Bureau.
Boulder Nursery	Jefferson		16	12.6[c]	−11.3	45[c]	2†	−22[c]	7	43[c]	0.95	+ 0.49	0.40	9.5	4	14[c]	10[c]	2[c]		R. H. Spencer.
Bowen	Beaverhead	6,060	3	5.7		34	11†	−30	4†	43	0.44		0.13	8.2	12	10	2	19		B. B. Lawrence.
Bridger	Carbon	3,664	1	12.6		40	1†	−27	7	34	0.63		0.25	14.0	5	10	9	12	s.	L. E. Gard.
Broadview Exp. Sta	Yellowstone		3	10.0		42	13	−37	5	44	1.64		0.90	15.0	6	10	15	6	sw.	Thos. S. Hunt.
Browning	Teton	4.440																		Thos. B. Magee.
Busby	Rosebud		6	11.0		51	31	−28	5	44	1.05		0.24	11.9	11	11	11	9	sw.	
Busteed	Sweetgrass		2	16.7		48	30	−25	5	27	0.67		0.34	16.5	7	11	8	12	w.	T. H. Busteed.
Butte	Silver Bow	5,716	16	18.0	− 8.1	45	30	−12	4	28	1.20	+ 0.45	0.70	12.0	6	15	8	8	nw.	J. R. Wharton.
Canyon Ferry	Lewis & Clark	3,644	11	13.2	− 9.1	44	12	−17	23	30	0.11	− 0.35	0.07	2.0	3	19	5	7	nw.	A. C. Pratt.
Cascade	Cascade	7,336	6	20.0		53	12	−27	7	40	0.91		0.58	13.4	8	12	11	8	sw.	E. E. James.
Cataract Creek	Jefferson	7,000									0.93		0.31	15.0	8	15	14	2	nw.	Fred Gerdes.
Chessman Res.	Lewis & Clark	5,275	1	16.7[c]		43[c]	12	−19[c]	21	36[c]	1.00		0.40	19.0	4	15[c]	1[c]	10[c]	nw.	Chas. D.Schmidt.
Chester	Chouteau	3,140	6																	B. B. Weldy.
Chinook	....do	2,205	13	14.9		52	2	−24	7	52	0.18		0.11	.....	4					Thos. O. Hanlon Co.
Chouteau	Teton	3,810	4	19.9[b]		52[b]	14	−22[b]	7	46[b]	0.75		0.20	7.5	5	8[b]	6[b]	15[b]		H. Van De Reit.
Clear Creek	Chouteau		4	11.6[a]		49[a]	30	−20[a]	22	52[a]										C. Sedgwick.
Clemons	Lewis & Clark	4,672									0.25		0.05	5.6	8	6	12	13	w.	Frank Eberl.
Columbus	Yellowstone	3,160																		O. F. Wilkinson.
Copper	Meagher										1.30		0.40	14.0	9	15	10	6	nw.	Orville Harris.
Crow Agency	Rosebud	3,041	20																	F. E. Server.
Culbertson	Valley	1,927	9																	G. H. Coulter.

TABLE 1.—*Climatological data for December, 1909. District No. 6*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.					Sky.				Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy ds .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	
Montana—Cont'd.																				
Cut Bank	Teton	3,700	11	14.8	− 6.4	45	30	−29	7	39	0.26	− 0.42	0.21	3.0	2	26	2	3	w.	Chas. N. Thomas.
Decker	Rosebud	3,400	5	0.4	.....	40	1	−30	6†	80	1.00	.....	0.40	10.0	4	.....	.....	.....	.....	Adam Anderson.
Deep Creek	Broadwater	4,200	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. D. W. Maryott.
Delphine	Meagher	5,000	....	.....	.....	.....	.....	.....	.....	.....	0.23	.....	0.10	8.4	6	11	10	10	w.	Tracy L. Holliday.
Denton	Fergus	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. M. Chamberlain.
Dillon	Beaver Head	5,147	12	19.2	− 7.1	47	1	−19	5	39	0.93	+ 0.11	0.40	9.8	6	10	12	9	sw.	J. E. Monroe.
Dirty Creek	Meagher	6,000	....	.....	.....	.....	.....	.....	.....	.....	0.47	.....	0.12	11.0	9	16	5	10	w.	Lewis Cameron.
Dry Creek	Broadwater	5,500	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. C. Stuart.
Dry Wolf Camp	Cascade	6,000	....	.....	.....	.....	.....	.....	.....	.....	1.55	.....	0.35	32.1	11	19	3	9	n.	Mrs. R. J. Eveleth.
East Gallatin River	Gallatin	6,300	....	.....	.....	.....	.....	.....	.....	.....	1.24	.....	0.44	21.5	10	13	6	12	w.	John Eberhart.
Ekalaka	Custer	.....	8	11.8	.....	46	31	−21	8	36	0.61	.....	0.14	14.5	7	16	6	9	n.	W. Freese.
Elkhorn	Jefferson	6,376	....	.....	.....	.....	.....	.....	.....	.....	0.61	.....	0.18	12.0	11	6	13	12	sw.	J. W. Skelton.
Evans	Cascade	4,900	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. Thrasher.
Fallon	Custer	2,208	5	9.0	.....	42	30	−24	8	36	0.25	.....	0.10	.....	3	19	10	2	w.	Mrs. A. C. Gifford.
Family‖	Teton	3,950	1	19.6	.....	47	12	−20	7	48	0.10	.....	0.07	1.9	2	9	17	5	w.	U. S. Reclamation Service
Fish Creek‖	Silver Bow	8,500	....	13.2	.....	36	29	−22	4	26	1.55	.....	0.52	23.5	4	18	8	5	w.	O. B. Tilton.
Fish Tail Creek	Carbon	5,000	....	.....	.....	.....	.....	.....	.....	.....	0.89	.....	0.48	15.0	6	17	7	7	w.	O. E. Haskin.
Flathead Creek	Gallatin	6,000	....	.....	.....	.....	.....	.....	.....	.....	1.84	.....	0.50	20.9	7	10	13	8	nw.	L. G. Brown.
Forsyth	Rosebud	2,514	3	13.8[b]	.....	56[b]	31	−20[b]	8	44[b]	0.82	.....	0.40	8.2	4	10[a]	11[a]	9[a]	w.	Thos. M. Patterson, jr.
Fort Benton	Chouteau	2,630	30	18.7	− 4.4	52	1	−18	21	31	0.65	+ 0.07	0.40	10.0	3	13	16	2	n.	River Observer.
Fort Shaw	Cascade	3,500	21	18.3	− 6.9	48	30	−26	7	41	0.24	− 0.26	0.09	3.7	6	15	2	14	w.	U. S. Reclamation Service
Fort W. H. Harrison	Lewis & Clark	4,004	6	13.9	.....	45	31	−17	24	49	.....	.....	.....	.....	.....	15	4	12	w.	Post Hospital.
Foster	Yellowstone	.....	1	11.4	.....	48	30†	−31	7	43	0.32	.....	0.08	.....	10	11	9	11	sw.	E. K. Bowman.
Garneil	Fergus	5,500	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. E. Scally.
Glendive	Dawson	2,069	20	10.4	− 9.9	42	31	−20	20	36	0.47	− 0.19	0.13	2.6	5	10	13	8	n.	W. B. Walker.
Goldbutte	Chouteau	.....	4	16.4[b]	.....	46[b]	15	−22	.....	37[b]	0.65	.....	0.35	9.0	.....	6[a]	2[a]	9[a]	.....	J. T. Berthelote.
Graham	Custer	.....	4	11.5[d]	.....	46[d]	31	−24[d]	21	45[d]	0.86	.....	0.22	11.3	9	9	8	14	nw.	J. S. Rue.
Grayling	Gallatin	6,700	6	5.0	.....	32	9†	−38	17	52	1.15	.....	0.24	20.0	8	10	12	9	nw.	P. Kersenmacher.
Great Falls	Cascade	3,350	18	19.2	+12.5	50	12	−22	7	38	0.75	+ 0.21	0.22	8.0	10	8	13	10	sw.	S. H. Bauman.
Half Moon Pass	Fergus	6,500	....	.....	.....	.....	.....	.....	.....	.....	0.67	.....	0.12	5.3	13	3	18	10	w.	Thos. Stigen.
Half Way House	Broadwater	6,000	....	.....	.....	.....	.....	.....	.....	.....	2.18	.....	0.37	24.8	9	17	8	6	ne.	Gordon Deans.
Harlowton	Meagher	4,165	2	14.4[b]	.....	45[b]	13†	−23[b]	5†	41[b]	0.25	.....	0.15	2.5	2	8[b]	7[b]	14[b]	w.	Jos. Muir.
Hassel	Broadwater	5,200	....	.....	.....	.....	.....	.....	.....	.....	0.37	.....	0.16	3.0	5	0	31	9	nw.	E. C. Albrecht.
Havre	Chouteau	2,505	29	11.8	− 9.4	48	30	−23	7	42	0.56	− 0.07	0.12	5.6	8	5	7	19	sw.	U. S. Weather Bureau.
Helena	Lewis & Clark	4,110	30	15.0	− 9.8	42	12	−14	7	38	0.59	− 0.21	0.22	6.8	8	8	11	12	nw.	U. S. Weather Bureau.
Highwood	Chouteau	.....	....	.....	.....	.....	.....	.....	.....	.....	2.74	.....	1.03	35.3	8	6	8	17	sw.	W. S. McCord.
Home Park	Madison	.....	....	.....	.....	.....	.....	.....	.....	.....	0.36	.....	0.16	5.0	4	13	8	10	e.	H. L. Miller.
Huntley	Yellowstone	3,014	4	14.1	.....	48	31	−31	7	32	0.75	.....	.....	10.0	3	10	15	6	e.	U. S. Reclamation Service
Jones Canyon	Gallatin	6,800	....	.....	.....	.....	.....	.....	.....	.....	2.16	.....	0.50	37.5	9	.....	.....	.....	w.	Jas. McCune.
Jordan	Dawson	.....	5	8.2	.....	42	15	−26	20	46	0.10	.....	0.05	1.0	2	.....	.....	.....	nw.	W. S. Henderson.
Kleinsmith Creek	Jefferson	6,000	....	.....	.....	.....	.....	.....	.....	.....	0.58	.....	0.20	9.0	7	12	18	1	w.	Mrs. E. W. Mills.
Lewistown	Fergus	4,010	12	13.8	−13.1	47	12	−27	7	42	1.21	+ 0.44	0.30	23.0	9	13	6	12	w.	W. W. Watson.
Livingston	Park	4,488	11	18.9	−11.2	47	1	−18	5	37	0.57	+ 0.14	0.27	12.5	6	11	3	17	sw.	Lewis Terwilliger.
Lodge Pole Creek	Sweetgrass	5,700	....	.....	.....	.....	.....	.....	.....	.....	1.46	.....	0.62	15.0	5	10	12	9	nw.	F. G. White.
Lone Tree	Chouteau	.....	5	18.0	.....	55	30	−16	22	41	1.30	.....	0.40	9.5	6	12	3	16	w.	E. Wilson.
Lost Horse Creek	Meagher	5,800	....	.....	.....	.....	.....	.....	.....	.....	0.82	.....	0.56	15.6	9	5	21	5	w.	C. M. Mason.
Lubec	Teton	5,046	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Malta	Valley	2,240	3	7.4	.....	46	30	−23	8†	36	0.40	.....	0.13	5.3	6	14	10	7	w.	U. S. Reclamation Service
Meadow Creek	Madison	6,700	....	.....	.....	.....	.....	.....	.....	.....	1.15	.....	0.52	15.5	3	24	6	1	n.	F. E. Parent.
Melstone	Fergus	2,903	....	.....	.....	.....	.....	.....	.....	.....	0.55	.....	0.30	9.0	4	.....	.....	.....	.....	E. J. Parkinson.
Mildred	Custer	.....	....	.....	.....	.....	.....	.....	.....	.....	T.	T.	T.	0	13	13	5	nw.	Leon B. Clark.	
Miles City	do	2,371	15	13.0	− 8.0	48	30	−17	22	36	0.37	− 0.25	0.10	4.5	10	14	8	9	s.	U. S. Weather Bureau.
Mill Creek	Park	5,500	....	.....	.....	.....	.....	.....	.....	.....	1.15	.....	0.33	11.5	7	12[a]	10[a]	8[a]	n.	W. H. Edick.
Moore	Fergus	.....	....	.....	.....	.....	.....	.....	.....	.....	0.80	.....	0.23	15.0	6	7	11	13	sw.	Clyde Grove.
Mudd Creek	Deer Lodge	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Emery Mudd.
Norris	Madison	4,845	3	17.3	.....	41	9	−25	7	42	1.85	.....	1.20	22.7	10	19	2	10	s.	Madison River Power Co
Nye	Sweetgrass	.....	1	18.7	.....	48	24	−29	7	46	0.88	.....	0.50	12.6	5	17	3	11	sw.	F. L. Bryant.
Olsen Creek	Jefferson	6,345	....	.....	.....	.....	.....	.....	.....	.....	0.73	.....	0.25	14.4	7	9	9	14	w.	Robt. Olsen.
Pipestone Pass	Jefferson	7,000	....	.....	.....	.....	.....	.....	.....	.....	0.83	.....	0.39	9.0	6	12	13	6	nw.	Mrs. Theola Kiermeyer
Poplar	Valley	2,020	25	7.2	− 7.1	43	30†	−25	18	47	0.21	− 0.28	0.15	3.7	3	24	5	2	w.	H. M. Cosler.
Raymond	Teton	4,260	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Campbell.
Rebers Ranch	Carbon	6,000	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. A. Reber.
Red Lodge	do	5,548	9	14.0	−10.6	47	31	−25	7	37	1.56	+ 0.87	0.50	19.5	6	11	8	12	se.	I. A. Draper.
Reese Creek	Gallatin	5,000	....	.....	.....	.....	.....	.....	.....	.....	3.74	.....	1.62	32.5	7	20	7	4	.....	Henry Cramer.
Renova	Jefferson	4,383	10	16.9	.....	42	1†	−20	7	27	0.36	.....	0.16	4.2	4	10	6	15	sw.	F. B. Elmer.
Rimini	Lewis & Clark	7,900	1	.....	.....	.....	.....	.....	.....	.....	1.15	.....	0.25	18.5	8	12	4	15	nw.	Milo Brooks.
Ryegate	Yellowstone	3,640	1	8.0	.....	48	31	−30	5†	45	0.70	.....	0.70	7.0	1	11	15	5	w.	H. W. Scherfenberg.
Sedan	Gallatin	3,155	2	14.0	.....	42	12	−20	7	31	0.25	.....	0.07	7.3	9	6	18	7	nw.	Jas. Woosley.
Springbrook	Dawson	.....	8	9.2	.....	42	1†	−35	20	41	1.28	.....	0.40	12.9	9	5	12	14	w.	Mrs. H. L. Miller.
Stearns	Lewis & Clark	4,500	....	.....	.....	.....	.....	.....	.....	.....	0.76	.....	0.43	14.2	3	14	0	17	w.	Jas. W. Hargrove.
Tokna‖	Dawson	2,050	4	10.0	.....	48	29	−21	20	46	0.49	.....	0.20	4.9	4	11	13	7	.....	U. S. Reclamation Service
Toston	Broadwater	3,950	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Little.
Townsend	do	3,790	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	River Observer.
Trail Creek	Park	6,000	....	.....	.....	.....	.....	.....	.....	.....	1.06	.....	0.46	28.1	11	18	5	8	w.	Andrew Weidenbauer.
Utica	Fergus	5,000	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	P. W. Korell.
Valentine	do	.....	3	12.1	.....	50	30	−23	8	46	0.66	.....	0.45	.....	4	17	4	10	w.	B. M. Bean.
Virginia City	Madison	5,880	21	13.9	− 8.8	40	31	−12	4†	26	0.37	− 0.40	0.20	7.5	4	13	11	7	ne.	Francis Mailand.
Wall Rock Mountain	Broadwater	5,600	....	.....	.....	.....	.....	.....	.....	.....	0.42	.....	0.09	12.4	10	12	7	12	.....	D. L. Doig.
Warm Springs Creek‖	Madison	7,500	1	.....	.....	.....	.....	.....	.....	.....	0.88	.....	0.24	10.5	14	10	6	15	e.	M. D. Lytle.
West Rosebud Creek	Carbon	.....	....	.....	.....	.....	.....	.....	.....	.....	1.79	.....	1.20	21.0	7	18	3	10	.....	C. P. Whitten.
Willow Creek	Park	9,000	....	.....	.....	.....	.....	.....	.....	.....	0.66	.....	0.50	15.1	5	8	10	13	w.	John Topp.
Wolf Creek	Lewis & Clark	4,000	6	20.0	.....	50	30	−14	7	31	.....	.....	.....	.....	.....	12	7	12	se.	A. W. Varharen.
Wolf Point	Valley	1,995	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	River Observer.
Woodville	Jefferson	6,376	....	.....	.....	.....	.....	.....	.....	.....	0.39	.....	0.11	5.4	7	11	13	7	sw.	Anna Kinman.
North Dakota.																				
Aplin	Oliver	.....	2	5.6	.....	42	1	−21	8	40	1.25	.....	0.40	6.5	7	7	17	7	nw.	J. B. Hazelbarger.
Beach	Billings	2,759	2	6.6[a]	.....	43[b]	1	−23	20	26[b]	1.18	.....	0.24	7.5	11	2	22	7	nw.	D. J. Steiner.
Berlin	La Moure	1,470	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	N. S. French.
Berthold Agency	McLean	2,082	12	7.5[b]	−10.8	46[a]	1	−22[b]	24	44[b]	0.67	+ 0.37	0.32	10.6	7	12	8	11	nw.	C. L. Hall.
Bismarck	Burleigh	1,674	34	7.0	− 8.0	41	30	−21	19	34	1.05	+ 0.42	0.29	15.5	12	6	11	14	nw.	U. S. Weather Bureau.
Bronche	Mercer	.....	1	5.9	.....	42	1	−20	8	35	0.97	.....	0.20	9.8	10	3	24	4	nw.	E. M Walker.
Buford	Williams	1,944	3	8.6	.....	41	30†	−21	8	33	0.40	.....	0.20	4.0	3	15	0	16	nw.	G. O. Sanford.
Coal Harbor	McLean	1,901	12	5.9[b]	− 9.0	45[a]	1	−26[b]	19	36[b]	0.65	+ 0.13	0.25	6.5	5	11	0	20	nw.	F. H. Childs.
Dickinson	Stark	2,453	16	8.7	−10.0	47	31	−19	8†	42	1.02	+ 0.51	0.20	6.5	13	13	5	13	nw.	L. R. Waldron.
Edgeley	Lamoure	1,408	7	6.2	− 8.7	46	1	−26	29	39	0.84	+ 0.24	0.54	5.4	7	13	1	17	nw.	O. A. Thompson.
Ellendale	Dickey	1,449	16	5.8	−11.0	41	30	−27	29	43	0.58	+ 0.28	0.28	.....	6	8	6	17	n.	U. S. Weather Bureau.
Epping	Williams	.....	1	.....	.....	.....	.....	.....	.....	.....	0.65	.....	0.15	6.1	10	16	2	13	nw.	J. G. Wilson.

TABLE 1.—*Climatological data for December, 1909. District No. 6*—Continued.

Stations	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
North Dakota—Cont'd.																				
Fullerton	Dickey	1,439	10	6.0	− 8.3	37	1†	−32	29	40	2.70	+ 1.96	0.68	24.2	13	7	12	12	nw.	F. O. Alin.
Haley	Bowman		1	12.6	.....	47	13	− 6	7	32	0.57	.....	0.15	4.5	5	12	13	6	nw.	Myra Hart.
Hettinger	Adams	2,253	2	9.0	.....	46	2	−15	8	36	0.90	.....	0.30	9.0	5	0	22	9	nw.	F. E. Ellickson.
Howard	Williams	2,275	2	5.3	.....	37	31	−25	8	34	1.75	.....	0.69	17.5	6	12	6	13	nw.	C. B. Amsbaugh.
Jamestown	Stutsman	1,390	21	3.7	−11.5	40	30	−32	29	50	1.44	+ 0.69	0.50	10.5	7	6	11	14	nw.	L. B. Baldwin.
Kulm	Lamoure	1,966	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. F. Brenckle.
Lamoine	Kidder		1	2.8[b]	.....	40[c]	1	−32[b]	9	32[a]	1.50	.....	0.60	15.0	5	.....	.....	.....	nw.	E. V. Virgin.
Lamoure	Lamoure	1,307	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. H. Ormsby.
Manfred	Wells			2.9	.....	34	31	−26	9†	41	1.70	.....	0.40	17.0	12	6	17	8	nw.	
Marmarth	Bowman		1	.....	.....	.....	.....	.....	.....	.....	0.29	.....	0.05	8.4	12	12	11	8	nw.	S. P. Crane.
Marstonmoor	Stutsman		1	.....	.....	.....	.....	.....	.....	.....	1.37	.....	0.72	9.5	6	13	6	12	nw.	H. H. McCumber.
Medina	.....do	1,796	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. Dwyer.
Medora	Billings	2,225	12	9.8	−10.6	52	1	−26	18	42	0.36	− 0.12	0.14	9.0	4	4	11	16	ne.	J. W. Hesser.
Melville	Foster	1,590	11	5.8	− 6.2	38	31	−28	8	34	1.40	+ 1.11	1.20	14.0	3	.....	.....	.....	nw.	J. P. Kidder.
Mott	Hettinger		2	3.6	.....	52	31	−22	16	56	1.47	.....	0.26	17.5	15	10	6	15	nw.	O. H. Opland.
Napoleon	Logan	1,955	17	3.2	− 9.9	45	1	−33	29	40	1.30	+ 0.68	0.50	12.5	9	14	2	15	nw.	C. J. Hoof.
New England	Hettinger	2,400	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. C. McKenzie.
New Salem	Morton	2,163	2	6.3	.....	54	1	−21	20	45	1.25	.....	0.40	16.0	9	8	6	17	nw.	J. Christiansen.
Orange	Adams		2	7.8[b]	.....	40[b]	1	−23[b]	20	41[b]	2.10	.....	0.60	21.0	6	15	6	10	nw.	J. E. Goforth.
Palermo	Ward	2,200	5	.....	.....	.....	.....	.....	.....	.....	0.80	.....	0.40	8.0	3	12	8	11	nw.	T. A. McCann.
Steele	Kidder	1,857	13	4.2	−11.6	34	30	−27	29	37	1.40	+ 1.06	0.30	14.0	6	14	8	9	nw.	B. C. Smith.
Swartwood	Bowman		1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. F. Adams.
Washburn	Mc Lean	1,731	5	4.7	.....	40	1	−22	9	37	0.36	.....	0.10	6.5	7	15	9	7	w.	W. R. Peterson.
Williston	Williams	1,875	29	6.8	− 6.8	40	31	−20	8	34	0.46	− 0.20	0.18	4.6	6	8	7	16	nw.	U. S. Weather Bureau.
Wishek	McIntosh	2,010	4	2.1	.....	37	28	−30	37	47	1.69	.....	0.80	15.0	7	.....	.....	.....	nw.	H. E. Timms.
South Dakota.																				
Aberdeen	Brown	1,300	20	6.6[a]	−10.3	40[a]	30	−28[a]	29	43[a]	3.00	+ 2.19	1.00	21.2	12	9	6	16	nw.	D. G. Gallett.
Academy	Charles Mix		21	11.1	−13.0	44	1	−15	19	33	1.80	+ 1.09	0.55	16.2	9	9	12	10	nw.	I. T. Lothrop.
Alexandria	Hanson	1,352	21	9.8	−11.4	45	1	−25	29	35	1.49	+ 0.88	0.65	9.0	4	1	14	16	nw.	W. S. Hill.
Andover	Day	1,476	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. L. Stone.
Ardmore	Fall River	3,557	1	.....	.....	.....	.....	.....	.....	.....	2.25	.....	1.60	22.5	5	13	8	10	.....	C. G. Hurlbut.
Armour	Douglas	1,521	16	14.6	− 8.3	48	30	−23	28	49	1.65	+ 0.95	0.60	13.0	7	8	15	8	nw.	J. S. Bean.
Ashcroft	Harding	3,192	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Thos. Ashcroft.
Belle Fourche	Butte	3,000	2	12.2	.....	51	31	−23	12†	49	0.72	.....	0.40	14.5	9	4	12	15	nw.	W. H. McGinley.
Bowdle	Edmunds	1,995	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. T. Smithers.
Brookings	Brookings	1,636	22	10.1[b]	− 9.4	46[d]	2	−26	29	29[d]	1.14	+ 0.57	0.30	6.0	6	2	2	18	nw.	Prof. C. Willis.
Burke	Gregory		2	11.0[a]	.....	43[a]	1	−13[a]	9†	38[a]	1.85	.....	0.60	14.5	7	11	5	15	nw.	James Connell.
Canton	Lincoln	1,248	14	12.2	−10.4	44	1†	−25	29	46	1.68	+ 1.08	0.60	15.0	8	12	4	15	nw.	John .H Holsey.
Cascade Springs	Fall River	3,422	2	12.8	.....	47	1	−22	12	45	1.65	.....	1.20	16.5	4	12	9	10	w.	Fred Norenberg.
Castlewood	Hamlin	1,685	4	8.4	.....	41	1	−27	29	39	0.85	.....	0.28	4.2	9	2	5	24	nw.	M. N. Bradley
Centerville	Turner	1,229	5	10.4	.....	45	1	−22	29	39	2.42	+ 1.59	0.40	19.7	19	1	7	23	nw.	Frank Williams.
Chamberlain	Brule	1,363	12	9.4[j]	.....	45[a]	31	−18[a]	19	36[j]	1.61	+ 1.18	0.59	14.9	3	13	4	14	nw.	G. A. Fry.
Clark	Clark	1,779	16	6.2	−13.4	43	1	−26	29	48	1.77	+ 1.24	0.40	13.5	11	10	11	10	nw.	O. H. La Craft.
Clear Lake	Deuel	1,800	7	6.0[a]	.....	46[a]	1	−21	29	39[a]	1.56	.....	0.70	13.0	9	15	0	16	nw.	L. F. Hanly.
Clifton	Sully																			H. F. Chamberlain.
Cottonwood	Stanley		1	12.2	.....	50	1	−15	5†	27	0.58	.....	0.13	4.9	9	9	5	17	nw.	S. W. Sussex.
Daviston	Perkins		1	10.0	.....	43	31	−23	18	37	0.50	.....	0.20	5.0	3	10	8	13	nw.	G. G. Davis.
Deadwood	Lawrence	4,535	1	15.9	.....	54	30	−16	18	45	3.40	.....	1.50	27.5	8	14	6	11	.....	R. E. Grimshaw.
De Smet	Kingsbury	1,726	18	9.2[a]	− 9.4	42[a]	1	−25[a]	29	39[a]	1.20	+ 0.56	0.30	12.0	7	10	9	12	nw.	J. O. Purinton.
Dowling	Stanley	2,250	1	12.6	.....	47	1	−12	8	28	1.30	.....	0.30	13.0	9	7	9	15	nw.	M. P. Dowling.
Dumont	Lawrence	6,195	1	.....	.....	.....	.....	.....	.....	.....	4.90	.....	0.79	38.0	17	9	9	14	nw.	A. B. Wood.
Elk Point	Union	1,127	11	13.7[a]	−10.5	50[a]	1	−22[a]	20	48[a]	.....	.....	.....	.....	.....	6	5	20	w.	M. Hoffman, jr.
Ellingson	Perkins															12	12	7	nw.	R. E. Sheriff.
Englewood	Lawrence	5,723	1	.....	.....	.....	.....	.....	.....	.....	3.67	.....	0.80	49.7	15	11	8	12	nw.	E. E. White.
Eureka	McPherson	1,884	1	7.6	.....	48	1	−20	29	34	2.40	.....	0.80	18.0	8	11	11	9	nw.	W. D. Griggs.
Fairfax	Gregory		7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. T. Murphy.
Farmingdale	Pennington	3,000	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. E. Nicholls.
Faulkton	Faulk	1,595	16	8.2	−10.5	40	30	−22	29	37	1.46	+ 1.09	0.55	11.1	6	18	4	9	w.	Miss Belle Talcott.
Flandreau	Moody	1,565	20	7.2[f]	.....	44[f]	1	−22[f]	29	31[f]	2.23	+ 1.60	0.80	14.5	8	.....	.....	.....	.....	G. A. Perley.
Forestburg	Sanborn	1,231	19	9.8	−10.0	42	1	−29	29	38	1.45	+ 0.93	1.45	13.0	4	7	10	14	nw.	M. K. Judy.
Fort Meade	Meade	3,624	29	14.9	−12.8	60	31	−17	8	46	1.31	+ 0.69	0.40	18.8	9	12	3	16	w.	Post Surgeon.
Frederick	Brown	1,371	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. E. Jeffers.
Gannvalley	Buffalo		12	9.4	−10.0	41	1	−18	19	30	2.60	+ 2.03	0.70	25.0	6	11	9	11	nw.	V. P. Dripps.
Greenmount	Lawrence	6,430	1	.....	.....	.....	.....	.....	.....	.....	3.42	.....	1.83	29.0	15	12	8	11	w.	John H. Leitel.
Greenwood	Charles Mix		15	13.8	−12.8	46	30†	−17	19	39	1.90	+ 1.33	0.60	16.0	8	11	7	13	nw.	T. C. Williamson.
Hardy Ranger Station	Lawrence	6,600	.....	.....	.....	.....	.....	.....	.....	.....	5.16	.....	0.90	59.3	13	15	3	13	nw.	Mrs. Mary E. Seals.
Hermosa	Custer	3,349	4	14.0	.....	56	31	−18	6	41	0.53	.....	0.10	5.4	7	15	7	9	.....	S. M. Booth.
Highmore	Hyde	1,890,	16	7.1	−13.7	39	1	−18	29	34	1.01	+ 0.65	0.22	7.5	13	7	11	13	nw.	P. H. Moore.
Hill City	Pennington	5,061	1	.....	.....	.....	.....	.....	.....	.....	0.39	.....	0.15	7.0	6	12	6	13	w.	Geo. A. Karr.
Howard	Miner	1,564	18	9.8[f]	.....	43[f]	1	−22[f]	18	43[f]	1.18	+ 0.70	0.37	9.5	10	.....	.....	.....	nw.	J. J. Cox.
Howell	Hand		8	7.8	.....	35	30	−26	29	34	1.49	.....	0.40	13.6	12	12	8	11	nw.	M. A. Shuster, jr.
Huron	Beadle	1,306	29	8.9	− 6.8	41	1	−22	29	36	1.37	+ 0.75	0.41	10.3	15	3	11	17	nw.	U. S. Weather Bureau.
Ipswich	Edmunds	1,530	12	7.4	− 9.2	37	30	−24	29	37	0.79	+ 0.51	0.26	7.9	4	19	5	7	nw.	J. B. Taylor.
Kadoka	Stanley	2,467	1	12.3	.....	46	1	−12	8†	32	0.74	.....	0.18	.....	9	10	13	8	nw.	Rev. D. S. Brown
Kennebec	Lyman	1,689	14	10.1[b]	−11.8	41[a]	1	−20[b]	19	32[b]	2.07	+ 1.74	0.60	18.0	9	15	3	13	nw.	R. C. Van Horn.
Kidder	Marshall	1,295	6	5.9	.....	40	1†	−30	29	35	1.35	.....	0.50	7.5	5	9	3	19	nw.	H. C. Schussler.
Kimball	Brule	1,788	20	9.0[a]	−13.4	40[a]	1†	−16	29	36[a]	1.22	+ 0.59	0.40	16.0	5	19	6	6	nw.	G. D. Rose.
La Delle	Spink	1,400	13	8.2	− 8.9	44	1	−31	29	35	1.95	+ 1.32	0.65	17.0	8	6	3	22	nw.	E. L. Ebbert.
Lead	Lawrence	5,200	1	16.0	.....	49	30	−13	7	37	3.51	.....	0.82	32.0	15	14	8	9	nw.	E. F. Irwin.
Lemmon	Perkins	2,345	1	8.5	.....	44	1	−17	8	36	0.90	.....	0.20	9.0	7	14	8	9	nw.	W. E. Lyman.
Leslie	Stanley	1,225	.....	8.6[j]	.....	39[j]	16	−13[j]	20	34[j]	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. E. Robinson.
Marion	Turner	1,447	9	10.1	.....	52	2	−25	29	42	2.33	.....	0.67	24.5	8	6	10	15	nw.	M. H. Dains.
Mellette	Spink	1,300	17	7.8	− 9.7	40	30	−28	29	36	1.12	+ 0.77	0.40	7.5	12	9	4	18	nw.	Frank A. Howe.
Menno	Hutchinson	1,325	14	11.2	−11.1	45	1	−28	29	41	1.76	+ 1.13	0.52	12.6	11	12	4	15	nw.	J. H. Swanton.
Mitchell	Davison	1,312	14	9.2	−13.0	42	1†	−23	29	45	1.60	+ 1.00	0.55	15.0	6	12	6	13	w.	C. W. Downey.
Murdo	Lyman	2,300	2	11.0	.....	43	31	−12	8	38	2.05	.....	0.60	24.0	4	21	1	9	nw.	L. C. Bode.
Orman	Butte	2,920	4	11.4	.....	50	31	−22	12	44	1.30	.....	0.70	9.0	4	.....	.....	.....	.....	W. H. Rader.
Ottumwa	Stanley		2	10.5[b]	.....	42[b]	1	−17[b]	9	27[b]	1.10	.....	0.30	11.0	6	10	7	14	nw.	H. Hallenbeck.
Pierre	Hughes	1,572	19	12.0	− 8.1	44	30	−12	30	37	1.10	+ 0.60	0.30	12.1	11	7	9	15	nw.	U. S. Weather Bureau.
Plankinton	Aurora	1,528	19	.....	.....	.....	.....	.....	.....	.....	1.87	+ 1.33	0.73	11.7	9	9	9	13	nw.	W. G. Andrews.
Pollock	Campbell		3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. H. Jones.
Rapid City	Pennington	3,251	22	14.6	−11.4	57	31	−16	7	48	1.00	+ 0.54	0.32	9.6	11	7	11	13	w.	U. S. Weather Bureau.
Redfield	Spink	1,295	12	10.0	− 7.3	40	30	−25	29	52	1.65	+ 1.33	0.75	6.0	3	15	0	16	nw.	A. S. Hall.
Rosebud	Meyer	2,600	15	12.8	−12.5	47	1	−16	8	33	3.30	+ 2.32	0.80	28.0	11	8	15	8	nw.	W. M. Ege.
Roslyn	Day		4	6.4	.....	39	1	−25	29	30	1.74	.....	0.60	10.1	10	2	16	13	nw.	O. O. Floren.
Running Water	Bon Homme		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. N. Isham.
Savoy	Lawrence	4,500	.....	.....	.....	.....	.....	.....	.....	.....	3.02	.....	0.60	30.8	14	6	14	11	.....	W. J. Hall.

TABLE 1.—*Climatological data for December, 1909. District No. 6*—Continued.

Stations	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
South Dakota—Cont'd.																				
Selby	Walworth	.....	1	6.8[4]	.....	40[4]	1	−22[4]	20	35[4]	1.58	.....	.....	12.0	4	14	6	11	nw.	Miss Gertrude Hall.
Sioux Falls	Minnehaha	1,400	20	11.3	− 9.3	58	2	−20	29	35	1.95	+ 1.21	1.10	11.5	4	9	9	13	nw.	J. H. Bechtold.
Spearfish	Lawrence	3,647	....	15.6	−15.1	27	29	−16	9	36	0.75	− 0.11	0.30	13.0	6	11	5	15	w.	O. A. Martin.
Stephan	Hyde	1,840	5	7.8	.....	38	1	−19	19	35	1.32	.....	0.35	11.5	10	10	9	12	nw.	Rev. A. Mattingly.
Tama	Meade	.....	1	8.2	.....	40	1†	−23	18	32	1.26	.....	0.45	12.7	9	8	6	17	nw.	J. J. Daily.
Vale	Butte	2,765	2	11.3	.....	49	31	−20	12	37	1.07	.....	0.40	10.5	6	10	9	12	nw.	G. W. Shaw.
Van Metre	Lyman	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Thos. H. Hill.
Vermillion	Clay	1,222	8	12.2	.....	45	30	−20	29	42	1.92	.....	0.55	9.7	11	15	1	15	nw.	Prof. E. C. Perisho.
Water's Ranch	Lawrence	4,000	1	.....	.....	.....	.....	.....	.....	.....	1.49	.....	0.35	20.0	10	15	2	14	nw.	Geo. Waters.
Watertown	Codington	1,735	14	8.8	− 8.7	40	1	−25	29	35	1.72	+ 1.32	.....	11.8	7	6	5	20	nw.	Robert Q. Wood.
Wentworth	Lake	.....	19	10.0	− 8.1	42	1†	−23	29	35	1.67	+ 1.07	0.49	9.5	11	5	8	18	nw.	R. C. Zimmerman.
Wessington Springs	Jerauld	1,410	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. N. Dunham.
White Lake	Aurora	1,646	....	.....	.....	.....	.....	.....	.....	.....	2.09	.....	.....	.....	.....	5	0	26	nw.	Mrs. G. A. Rogers.
Yankton	Yankton	1,234	37	12.1	−10.1	46	1	−19	19	38	1.90	+ 1.17	0.71	17.2	12	7	6	18	nw.	U.S. Weather Bureau.
Minnesota.																				
Pipestone	Pipestone	1,710	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. S. Campbell.
Colorado.																				
Akron	Washington	4,650	7	.....	.....	.....	.....	.....	.....	.....	0.55	.....	0.40	7.0	3	.....	.....	.....	.....	Ira M. Barnhouse.
Alma	Park	10,238	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Powless.
Arriba (near)	Lincoln	5,239	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. S. Graves.
Auldhurst	Teller	8,500	....	.....	.....	.....	.....	.....	.....	.....	0.59	.....	0.41	10.0	3	19	10	2	s.	Mrs. Alice A. Auld.
Barker	Boulder	8,000	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E'n Colo. P. Co.
Boreas	Park	11,489	....	.....	.....	.....	.....	.....	.....	.....	1.76	.....	0.68	22.5	7	0	20	11	nw.	Frank Soper.
Boulder	Boulder	5,347	13	19.9	−16.0	62	31	−14	18	36	1.72	+ 1.04	0.65	31.0	6	16	9	6	w.	S. A. Giffin.
Burlington	Kit Carson	4,160	5	17.3	.....	49	31	−10	7†	29	0.70	.....	0.40	9.0	8	18	8	5	nw.	C. Creglow.
Cassels	Park	8,445	....	.....	.....	.....	.....	.....	.....	.....	0.66	.....	0.39	7.0	5	21	5	5	e.	Harriet M. Cassell.
Castle Rock	Douglas	6,220	13	17.1	−11.9	57	31	−26	18	52	0.93	+ 0.24	0.78	17.0	2	.....	.....	.....	.....	Chas. Hy. Ellis.
Cheesman	Jefferson	6,890	6	23.4	.....	55	30	−15	18	46	0.67	.....	0.47	9.5	3	28	2	1	.....	C L. Adams.
Cheyenne Wells	Cheyenne	4,279	16	17.6	−13.0	54	31	−11	5	40	0.27	− 0.16	0.27	4.0	1	16	6	9	n.	J. B. Robertson.
Como	Park	9,785	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Edwin Pike.
Cope	Washington	.....	11	16.6	−13.9	48	2†	−18	8†	38	3.02	+ 2.30	0.60	30.0	8	11	8	12	nw.	A. A Williams.
Corona	Grand	11,660	2	2.6	.....	26	31	−23	18	27	3.68	.....	0.74	44.5	16	.....	.....	.....	w.	U. S. Weather Bureau.
Denver	Denver	5,272	37	21.2	−11.0	63	31	−13	17	39	0.88	+ 0.28	0.41	11.7	6	17	10	4	sw.	U. S. Weather Bureau.
Edgewater	Jefferson	.....	1	20.2	.....	61	31	−20	18	46	0.76	.....	0.68	9.0	2	12	13	6	.....	Dr. J. B. Fish.
Estes Park Hatchery	Larimer	8,000	....	.....	.....	.....	.....	.....	.....	.....	0.40	.....	0.20	5.0	2	2	14	15	w.	Gaylord H. Thompson.
Fort Collins	do	4,985	29	18.4	−11.1	61	31	−19	5	40	0.58	+ 0.25	0.26	10.7	7	14	11	6	nw.	Colo. Agrt. College.
Fort Morgan	Morgan	4,319	14	16.8	−10.5	78	31	−20	5†	60	0.21	− 0.01	0.14	6.0	3	6	20	5	nw.	Della M. Scott.
Frances	Boulder	9,300	4	18.0	.....	64	31	−17	5†	47	0.78	.....	0.25	11.8	7	20	5	6	.....	Geo. W. Johnson.
Fry's Ranch	Larimer	7,500	....	21.3	.....	50	30	−13	17†	35	0.51	.....	0.18	6.5	5	23	4	4	w.	Norman W. Fry.
Georgetown	Clear Creek	8,550	8	.....	.....	.....	.....	.....	.....	.....	0.44	.....	0.23	7.5	2	11	9	11	.....	H. L. Corbett.
Greeley	Weld	4,849	18	17.6	−10.8	50	1	−15	5†	39	0.53	+ 0.27	0.26	5.8	8	16	9	6	ne.	Nelson Reynolds.
Hartsel	Park	7,670	....	.....	.....	.....	.....	.....	.....	.....	0.27	.....	0.12	9.6	9	19	8	4	w.	Emily Kleinknecht.
Hawthorne	Boulder	6,000	1	.....	.....	.....	.....	.....	.....	.....	0.91	.....	0.58	18.5	5	21	9	1	.....	B. L.Chesebro.
Holyoke (near)	Phillips	3,745	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. E. T. Hazen.
Idaho Springs	Clear Creek	7,534	9	21.8	− 8.0	52	31	− 9	17†	34	0.39	.....	0.22	5.5	3	0	30	1	w.	J. J. Willis.
Keota	Weld	4,966	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kessler	Boulder	7,720	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E'n. Colo. P. Co.
La Port	Larimer	5,052	16	.....	.....	.....	.....	.....	.....	.....	0.52	+ 0.08	0.22	9.8	5	.....	.....	.....	.....	P. A. Taft.
Le Roy (near)	Logan	4,380	20	13.6	−16.2	46	31	−14	7	33	1.08	+ 0.66	0.56	13.5	9	12	10	9	nw.	Chas. Green.
Longmont	Boulder	4,980	7	19.4	.....	64	31	−17	5†	47	0.78	.....	0.25	11.8	7	20	5	6	.....	Geo. W. Johnson.
Long's Peak (near)	Larimer	8,600	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Enos A. Mills.
Moraine	do	7,775	19	16.7	−10.4	44	12	−23	4	43	.....	.....	.....	.....	.....	6	14	11	w.	J. D. Stead.
Platte Canyon	Jefferson	5,492	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Norman Steele.
St. Cloud	Larimer	7,750	....	.....	.....	.....	.....	.....	.....	.....	0.57	.....	0.21	10.5	6	16	7	8	nw.	Mrs. Phebe A. Campton.
Sedgwick	Sedgwick	3,573	1	14.3	.....	44	1	−15	12†	45	0.91	.....	0.25	14.0	8	10	12	9	nw.	Dr. Edwin Lewis.
Sill Mine	Clear Creek	11,500	....	6.0	.....	35	2	−16	17	28	2.80	.....	0.58	29.9	17	8	12	11	nw.	Chas. F. Deininger.
Spicer (near)	Larimer	8,700	....	.....	.....	.....	.....	.....	.....	.....	0.47	.....	0.13	9.5	11	11	9	11	sw.	Frank W. Murphy.
Waterdale	do	5,206	14	21.3	.....	63	31	−10	7†	36	0.34	− 0.13	0.21	4.2	3	.....	.....	.....	.....	P. H. Boothroyd.
Westlake	Boulder	.....	1	.....	.....	.....	.....	.....	.....	.....	0.76	.....	0.40	10.0	4	18	6	7	.....	G. E. Richardson.
Wray	Yuma	3,512	15	18.1	−12.6	58	31	−19	5	39	0.63	+ 0.31	0.25	6.8	4	11	13	7	w.	J. C. Tuomey.
Yuma	do	4,138	18	.....	.....	.....	.....	.....	.....	.....	0.93	+ 0.46	0.30	2.5	5	13	6	12	nw.	Geo. W. Custer.
Nebraska.																				
Ainsworth	Brown	2,321	4	11.8	.....	43	1†	−15	19	33	3.14	.....	.....	15.0	9	6	16	9	nw.	John M. Cotton.
Albion	Boone	1,747	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. A. Pittenger.
Alliance	Boxbutte	3,968	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, C. B. & Q. R. R
Alma	Harlan	1,939	12	16.7	−11.5	51	1	−18	8	42	1.53	+ 1.07	0.55	11.0	6	16	7	8	nw.	W. A. Sharpnack.
Ancka	Boyd	.....	3	10.2	.....	44	1†	−24	19†	40	1.19	.....	0.63	12.0	6	1	21	9	nw.	W. Whitla.
Arcadia	Valley	2,186	....	.....	.....	.....	.....	.....	.....	.....	0.65	+ 0.27	0.20	6.5	6	12	5	14	nw.	J. L. Owen.
Ashland	Saunders	1,100	19	14.9	−12.1	48	1	−17	19	42	2.53	+ 1.78	0.49	19.5	12	15	4	12	nw.	A. S. von Mansfelde.
Ashton	Sherman	2,061	....	.....	.....	.....	.....	.....	.....	.....	0.21	− 0.10	0.17	10.0	2	14	4	13	nw.	Fred Rein.
Atkinson	Holt	2,108	4	10.4	.....	46	1	−18	10	43	0.97	.....	0.40	.....	6	12	17	2	nw.	C. J. Wilson.
Auburn	Nemaha	1,051	17	18.0	−11.5	50	1	−12	9	43	1.82	+ 0.81	0.60	10.5	11	17	4	10	n.	J. R. Huffman.
Aurora	Hamilton	1,792	....	13.9	−13.8	46	1†	−11	9†	47	.....	.....	.....	.....	.....	17	0	14	w.	Agent, C. B. & Q. R. R.
Beatrice	Gage	1,235	18	16.2	−12.2	50	1	−15	9	39	3.95	+ 2.95	1.45	19.0	9	16	2	13	nw.	W. S. Waxham.
Beaver City	Furnas	2,147	18	17.2	−13.4	51	1	−15	8	33	1.33	+ 0.84	0.42	6.0	5	7	10	4	nw.	T. M. Davis.
Bellevue	Sarpy	1,210	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Bellevue College.
Bertrand	Phelps	2,515	....	.....	.....	.....	.....	.....	.....	.....	0.86	.....	0.43	19.0	.....	.....	.....	.....	.....	W. F. Dobbin.
Blair	Washington	1,123	12	16.2	− 8.9	48	1	−15	19†	42	2.39	+ 1.50	0.52	18.4	13	13	8	10	nw.	H. H. Hahn.
Bloomfield	Knox	.....	....	10.8	.....	45	1†	−23	19	42	1.80	.....	0.90	9.0	9	11	5	15	nw.	J. M. Barnard.
Bluehill	Webster	1,967	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, C. B. & Q. R. R.
Bradshaw	York	1,715	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. C. Roggy.
Bridgeport	Cheyenne	3,800	13	14.9[a]	−11.6	55	31	−19	5	34	1.95	+ 1.40	0.85	11.0	5	.....	.....	.....	nw.	R. H. Willis.
Brokenbow	Custer	2,477	15	.....	.....	.....	.....	−12	7†	....	1.44	+ 1.04	0.48	15.0	6	23	0	8	.....	Agent, C. B. & Q. R. R.
Burchard	Pawnee	1,377	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
Burge	Cherry	2,674	1	13.6	.....	60	30	−18	8	56	1.17	.....	0.50	.....	4	11	8	12	nw.	H. A. Davis.
Burwell	Garfield	2,180	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, C. B. & Q. R. R.
Cairo	Hall	1,951	....	.....	.....	.....	.....	.....	.....	.....	0.95	.....	0.40	9.5	5	.....	.....	.....	.....	Elliott Harrison.
Callaway	Custer	2,555	17	17.8	− 9.5	58	31	−14	7	38	1.12	+ 0.70	0.50	14.0	4	14	6	11	nw.	J. H. Evans.
Cambridge	Furnas	2,253	2	16.6	.....	47	1	−16	8	32	1.10	.....	0.46	8.0	4	13	4	14	sw.	Chas. Jensen.
Canton (near)	Sioux	.....	1	12.0[d]	.....	45	2†	−18	5	41	1.25	.....	.....	6.5	3	.....	.....	.....	nw.	A. E. Hann.
Columbus	Platte	1,442	15	13.6	−12.7	51	31	−15	9†	54	2.41	+ 1.79	1.38	13.5	11	12	2	17	.....	C. C. Gray.
Comad	Dawson	2,496	....	.....	.....	.....	.....	.....	.....	.....	1.79	.....	1.00	.....	4	.....	.....	.....	nw.	A. A. Luttin.
Creighton	Knox	1,609	12	11.9	−10.7	46	1	−19	19†	38	2.83	+ 1.93	0.53	19.5	14	11	2	18	nw.	C. H. Blood.
Crete	Saline	1,368	....	14.9	−12.8	48	1	−14	9	43	3.71	+ 2.99	1.75	13.2	6	16	2	13	nw.	Doane College.
Culbertson	Hitchcock	2,565	7	13.8[a]	.....	40	1†	−15	7†	50	1.58	+ 1.16	0.40	12.0	9	8	5	18	nw.	J. H. Corrick.
Curtis	Frontier	2,553	14	.....	.....	.....	.....	−14	8	....	1.83	+ 1.35	1.03	8.0	3	.....	.....	.....	ne.	Dr. S. R. Rasee.
David City	Butler	1,619	19	14.0	−12.4	46	1	−14	9	40	3.48	+ 2.65	1.08	21.2	13	10	8	13	nw.	S. Clingman.

TABLE 1.—*Climatological data for December, 1909. District No. 6*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Nebraska—Cont'd.																				
Dawson	Richardson	945	13	17.2	−11.5	49	1	+ 9	29	39	2.20	+ 1.37	0.73	13.0	8	14	4	13	nw.	Mrs. E. I. Atkinson.
Dubois	Pawnee	1,074	....								2.89	.....	1.08	8.5	13	16	3	12	nw.	O. M. Backus.
Duff	Rock	....	....																	Dewitt Eager.
Edgar	Clay	1,722	....																	G. W. Ferree.
Ellis	Gage	1,430	....								3.26	.....	1.46	14.0	7					D. J. Wood.
Elmcreek	Buffalo	2,268	....								1.17	.....	0.53	.....	3					E. L. Sutton.
Elsie	Perkins	3,382	....																	J. L. Brittain.
Enderslake	Brown	....	1																	C. D. Langley.
Endicott	Jefferson	1,288	....								2.02	.....	0.60	11.2	10	14	3	14	e.	Agent, C. B. & Q. R. R.
Ewing	Holt	1,888	3	11.2	.....	46	1†	−22	19	51	2.10	+ 1.43	0.50	20.0	11					G. H. Benson.
Fairbury	Jefferson	1,316	14	17.5	−10.8	52	1	−10	9	41	3.40	+ 2.70	1.30	16.2	10	16	3	12	nw.	W. F. Cramb.
Fairmont	Fillmore	1,641	15	14.2	−13.0	46	1	−13	9	47	3.79	+ 3.16	1.46	18.0	10	18	0	13	nw.	Agent, C. B. & Q. R. R.
Fort Robinson	Dawes	3,764	27	13.4	−14.3	52	31	−25	5	64	1.41	+ 0.70	0.50	13.0	4	13	8	10	w.	Post Surgeon.
Franklin	Franklin	1,820	15	14.8[b]	−14.3	52	1	−20	8	39	2.50	+ 1.97	0.80	17.0	5				w.	D. T. Shoemaker.
Fremont	Dodge	1,203	27	14.4	−11.0	46	1	−14	19	50	2.78	+ 1.79	0.60	22.0	11	9	8	14	nw.	Ernest Hahn.
Fullerton	Nance	1,629	3	14.0	.....	47	31	−15	19	37	2.20	.....	0.97	11.0	7	16	7	8	nw.	Dr. F. W. Johnson.
Geneva	Fillmore	1,633	17	14.4	−13.6	48	1	−12	9	38	3.04	+ 2.31	1.21	16.0	8	14	5	12	nw.	F. M. Flory.
Genoa	Nance	1,584	34	14.0	−10.7	46	1	−14	19	43	2.52	+ 1.71	0.94	10.0	11	7	12	12	nw.	F. W. Parsons.
Gordan	Sheridan	3,550	1	9.8[b]	.....	40	31	−23	17†	40	1.00	.....	0.50	12.0	3				nw.	G. F. Williams.
Gosper	Gosper	....	....								0.68	.....	0.40	.....	8	13	5	13	nw.	E. H. Stoll.
Gothenburg	Dawson	2,557	15	16.4	−12.2	58	31	−16	7	40	1.25	+ 0.77	0.35	12.5	5	14	1	16	nw.	W. J. Bartholomew.
Grand Island	Hall	1,860	17	16.2	−12.8	48	31	−14	19	33	0.75	+ 0.11	0.32	.....	6	14	4	13	nw.	E. A. Barnes.
Grant	Perkins	3,405	5	14.6[a]	.....	50	31	−18	5	38	1.78	.....	0.40	17.0	6				nw.	Cyrus Carver.
Greeley	Greeley	2,021	2	12.9	.....	49	31	−20	19	29	2.50	+ 1.95	0.55	25.0	13	10	11	10	nw.	W. E. Morgan.
Guderlock	Webster	1,646	....								2.02	+ 1.46	0.80	18.2	5	8	6	17	.....	J. S. Marsh.
Haigler	Dundy	3,258	....								1.07	+ 0.75	0.80	2.7	4				nw.	Agent, C. B. & Q. R. R.
Halsey §	Thomas	2,693	6	14.6		56	31	−15	8	34	1.51		0.85	4.0	6	2	18	11	nw.	U. S. Forest Service.
Hartington	Cedar	1,309	18	12.2	−11.0	45	1	−18	19	51	1.47	+ 0.43	0.58	7.5	10	14	5	12	nw.	D. E. Ewing.
Harvard	Clay	1,812	19	13.6	−13.0	46	1	−12	8†	39	1.24	+ 0.59	0.48	7.6	7	14	3	14	nw.	Dr. J. T. Fleming.
Hastings	Adams	1,932	16	16.1	−10.8	47	1	−11	7	44	2.28	+ 1.67	0.80	20.2	9	15	4	12	nw.	Agent, C. B. & Q. R. R.
Hayes Center	Hayes	....	5	16.8	.....	58	31	−17	7	41	2.60	+ 2.07	1.10	15.0	9	16	7	8	nw.	C. A. Ready.
Hay Springs	Sheridan	3,821	22	12.5	−12.4	47	31	−21	18	40	1.35	+ 0.59	0.60	12.0	6	9	12	10	nw.	A. Kadlecek.
Hebron	Thayer	1,458	24	16.4	−13.1	49	1	−10	9	33	2.13	+ 1.50	0.67	13.0	5					C. M. Easton.
Hendley	Furnas	2,231	....								1.20	.....	0.70	12.0	2					F. A. Jones.
Holdrege	Phelps	2,324	15	17.4	−11.4	49	31	−10	7	31	1.23	+ 0.69	0.36	8.8	9	18	0	13	nw.	Agent, C. B. & Q. R. R.
Hooper §	Dodge	1,228	12	14.2	−10.1	47	1	−17	19	45	1.71	+ 1.01	0.50	14.2	11	12	7	12	nw.	T. W. Lyman.
Imperial	Chase	3,278	20	16.8	−11.9	54	31	−16	5†	40	1.87	+ 1.30	1.08	19.8	7	10	8	13	nw.	Robt. Malcolm.
Kearney	Buffalo	2,146	17	17.0	−11.4	53	1	−15	7†	39	1.12	+ 0.63	0.30	10.2	9	14	7	10	nw.	N. C. Dunlap.
Kimball	Kimball	4,697	21	16.9	−13.4	47	31	−20	7	33	0.90	+ 0.35	0.40	9.0	5	18	11	2	nw.	F. J. Bellows.
Kirkwood	Rock	.....	14	12.0[a]	−12.7	45	1†	−21	19	32	2.26	+ 1.56	1.40	19.0	6	13	7	11	nw.	Mrs. C. Arter.
Kowanda	Denell	....	....								0.51	.....	0.31	.....	3					Geo. W. Hulse.
Leavitt §	Dodge	1,228	....																	W. T. Scilley.
Lexington	Dawson	2,385	20	16.3	−12.0	52	31	−15	7	35	0.98	+ 0.32	0.40	11.0	4	18	0	13	nw.	Rob't Chadwick.
Lincoln	Lancaster	1,189	24	15.2	−11.7	49	1	−12	19	36	2.59	+ 1.92	1.18	19.9	14	9	5	17	nw.	U. S. Weather Bureau.
Lodgepole	Cheyenne	3,820	....																	
Loup	Sherman	2,067	....	14.4	−12.1	50	31	−15	19	35	0.62	+ 0.47	0.30	11.0	4	17	3	11	nw.	
Loyal	Custer	....	....								0.50	.....	0.30	5.0	3	9	9	13	n.	C. H. Cass.
Lynch	Boyd	....	17																	S. W. Lightner.
McCook	Redwillow	2,506	9	16.2	−12.6	48	2	−21	6†	44	1.13	+ 0.70	0.50	11.0	4	17	0	14	w.	C. G. Coglizer.
McCool Junction	York	1,575	....								2.79	+ 2.14	1.58	.....	4					L. L. Slagle.
Madison	Madison	1,585	15	13.9	−11.1	50	1	−17	19	31	2.20	+ 1.47	1.00	17.5	10	14	3	14	nw.	Dr. F. A. Long.
Marquette	Hamilton	1,830	....								1.99	+ 1.34	0.85	10.5	9					John Ellis.
Mason City	Custer	2,257	....																	J. A. Amsberry.
Minden	Kearney	2,169	26	14.8	−13.0	51	31	−14	7†	32	1.78	+ 1.09	0.41	19.0	10	9	7	15	nw.	Joel Hull.
Mitchell	Scottsbluff	.....	1	13.4	.....	51	31	−26	5	45						8	18	5	nw.	U.S. Reclamation Service
Monroe	Platte	1,525	....								2.62	+ 2.00	1.50	8.8	9	12	7	12	.....	Wm Webster.
Nebraska City	Otoe	941	27	16.6	−10.5	48	1	−12	19	42	2.20	+ 1.37	0.60	21.0	7	10	7	14	n.	Agent, C. B. & Q. R. R.
Norfolk	Madison	1,532	24	13.1	−10.8	48	31	−21	19	46	2.34	+ 1.56	1.10	14.0	11	13	4	14	nw.	Dr. P. H. Salter.
North Loup	Valley	1,961	21	13.8	−13.2	48	31	−18	19	50	1.29	+ 0.77	.....	9.2	9	12	8	11	n.	W. G. Rood.
North Platte	Lincoln	2,841	35	15.2	−11.4	51	31	−14	7	39	1.37	+ 0.90	0.43	11.9	10	11	9	11	w.	U. S. Weather Bureau.
Oakdale	Antelope	1,722	21	10.7	−14.0	45	1	−18	19	29	2.00	+ 1.30	0.96	11.8	10	10	4	17	nw.	G. S. Clingman.
Odell	Gage	1,278	....								2.65	+ 1.88	1.80	6.0	6	14	1	16	sw.	Agent, C. B. & Q. R. R.
Omaha	Douglas	1,103	39	15.6	−11.5	47	1	− 9	29	38	2.33	+ 1.42	0.57	19.1	16	10	5	16	nw.	U. S. Weather Bureau.
Ord	Valley	2,062	....								0.84	+ 0.32	0.34	.....	4	10	9	12	n.	James Milford.
Orleans	Harlan	1,993	....								0.80	.....		8.0						James McGeachin.
Osceola	Polk	1,644	....	14.2[a]	.....	46	1	−16	19	32	1.30	.....	0.60	13.0	4	17	6	8	nw.	
Palmyra §	Otoe	1,142	11	15.9	−11.0	48	1†	−12	9†	28						15	11	5	w.	Thos. Coles.
Pawnee City	Pawnee	1,175	6	17.2	.....	49	31	−10	29	44	2.56	+ 1.72	1.15	8.0	7	19	0	12	nw.	F. A. Barton.
Plymouth	Jefferson	1,419	5	14.8	.....	48	1	−12	9	47	3.22	.....	1.85	.....	7	11	7	13	nw.	John Ruppel.
Purdum	Blaine	....	8	13.2		50	31	−19	19	34	2.21	.....	0.80	14.1	10	14	5	12	nw.	T. C. Jackson.
Ravenna	Buffalo	2,028	20	17.7	−10.6	54	31	−15	8†	34	1.41	+ 0.78	0.50	13.5	7	11	5	15	nw.	Erastus Smith.
Redcloud	Webster	1,687	13	15.6	−12.1	51	1	−17	8	42	1.79	+ 1.20	0.40	17.0	8	13	3	15	nw.	C. S. Ludlow.
St. Libory	Howard	1,887	....								1.54	+ 0.88	0.64	9.0	5	15	4	12	nw.	W. I. Meader.
St. Paul	do	1,796	15	15.4	−12.7	49	31	−15	19	36	1.18	+ 0.69	0.45	6.0	8	17	3	11	nw.	Paul Anderson.
Santee	Knox	.....	22	12.2	−10.5	49	1	−21	29	37	2.23	+ 1.56	0.60	20.5	9	10	7	14	nw.	E. G. Kendall.
Sargent	Custer	....	1																	J. L. Ferguson.
Schuyler	Colfax	1,357	....								2.57	+ 1.81	1.20	12.2	8	7	1	23	nw.	Agent, C. B. & Q. R. R.
Scottsbluff	Scottsbluff	4,662	3	15.4	.....	54	31	−20	5	34	0.70	.....	0.22	6.5	8	15	10	6	nw.	A. B. McCoskey.
Seward	Seward	1,435	....	13.0	−15.2	45	1†	−17	8†	53	2.77	+ 2.07	1.75	11.0	7	16	6	9	nw.	Agent, C. B. & Q. R. R.
Sheridan	Wheeler	....	....								1.05	.....	0.25	.....	6	14	6	11	nw.	J. C. Harris.
Sidney	Cheyenne	4,090	....								0.70	+ 0.38	0.18	11.0	9	20	5	6	nw.	J. P. Fischer.
Springview	Keyapaha	....	18	11.2	−15.8	47	31	−15	19	34	2.40	+ 1.67	0.90	15.0	6	11	6	14	nw.	C. L. Phelps.
Stanton	Stanton	1,472	15	12.3	−11.7	48	31	−21	19	42	2.20	+ 1.36	0.70	12.0	8	13	11	7	nw.	Alfred Pont.
Stratton	Hitchcock	2,804	....								1.61	+ 1.17	0.60	.....	6					Stella Vennum.
Superior	Nuckolls	1,574	....								1.40	+ 0.87	0.75	14.0	3					Agent, C. B. & Q. R. R.
Syracuse	Otoe	1,059	....								3.40	+ 2.59	1.00	22.0	11	14	0	17	nw.	Do.
Tablerock	Pawnee	1,023	....								3.17	+ 2.31	1.16	14.5	12	17	2	12	nw.	E. D. Howe.
Tecumseh	Johnson	1,113	22								2.57	+ 1.76	1.29	10.5	7	15	4	12	nw.	Agent, C. B. & Q. R. R.
Tekamah	Burt	1,060	19	13.8	−11.9	46	30	−15	29	49	2.47	+ 1.46	0.55	20.2	13	9	7	15	nw.	A. D Nesbit.
Turlington	Otoe	1,214	18	15.2	−11.3	48	1	−13	9†	44	3.53	+ 2.44	1.00	26.0	11	15	4	12	nw.	W. N. Hunter
University Farm §	Lancaster	.....	8	16.2	.....	48	1	−15	9	45	2.02	+ 1.22	0.75	.....	7	9	4	18	.....	S. W. Perin.
Valentine	Cherry	2,613	21	12.4	−12.1	46	31	−16	8	37	1.14	+ 0.52	0.25	7.1	10	7	17	7	nw.	U. S. Weather Bureau.
Wahoo	Saunders	1,187	....								3.06	.....	0.81	21.0	8	16	6	9	nw.	Wm. T. Mauck.
Wakefield	Dixon	1,387	13	12.8	−10.2	46	1	−19	29	44	1.62	+ 0.80	0.75	8.7	11	11	4	16	nw.	I. H. Weaver.
Wallace	Lincoln	3,116	....																	Agent, C. B. & Q. .R. R.
Walthill	Thurston	....	....																	Harry L. Keefe.
Watertown	Buffalo	2,299	....	.....	.....	.....	.....	.....	.....	.....	1.45	.....	0.60	.....	5	13	7	11	ne.	R. E. Swift.

TABLE 1.—*Climatological data for December, 1909. District No. 6*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Nebraska—Cont'd.																			
Wauneta	Chase										1.85	+ 1.43	0.40	16.0	6				C. D. Fuller.
Weepingwater	Cass	1,080	3	14.6		48	1	−18	19†	39	3.03	+ 2.15	0.51	25.5	15	17	0	14	nw. S. W. Orton.
Westpoint	Cuming	1,313	13	13.4	−11.1	47	2†	−21	29	53	2.25	+ 1.40	0.65	16.0	7	18	2	11	nw. J. C. Elliott.
Wilber	Saline	1,325									3.10	+ 2.39	1.75	13.5	7	12	6	13	nw. Agent, C. B. & Q. R. R.
Wisner	Cuming	1,380									1.63	+ 0.65	0.98	15.0	7	12	4	15	nw. Aoff & Deily.
Woodlawn	Lancaster	1,186									2.66		0.87	13.0	13	12	9	10	nw. H. C. Kendall.
York	York	1,606	17	14.4	−13.6	48	31	−14	9†	42	3.13	+ 2.47	1.53	14.0	9	18	0	13	nw. H. T. Gianque.
Iowa.																			
Afton§	Union	1,212	14	16.6	− 9.1	49	1	−14	29	36	2.59	+ 1.35	0.74	13.0	9	9	5	17	nw. N. W. Rowell.
Allerton §	Wayne	1,513	17	17.8	− 8.7	50	1	−13	29	40	2.28	+ 1.11	0.50	7.7	13	12	4	15	nw. Mrs. Geo. Shriver.
Alta§§	Buena Vista		6	11.2	−10.2	44	1	−19	29	44	1.33	+ 0.40	0.33	11.0	11	9	6	16	nw. David E. Hadden.
Alta (near)	do										1.39	+ 0.55	0.30	12.0	10				W. J. Minard.
Alton	Sioux	1,305	3	12.2		46	1	−18	29	37	1.90		0.74	11.0	12	15	3	13	nw. W. S. Slagle.
Atlantic	Cass	1,164	17	14.4	−10.5	48	2	−16	29	38	1.94	+ 0.79	0.65	15.0	9	10	5	16	nw. Thos. H. Whitney.
Audubon§	Audubon	1,301	15	15.2	− 8.7	46	1†	−14	29	34	2.01	+ 1.05	0.50	11.2	11	14	2	15	nw. Geo. E. Kellogg.
Bedford§	Taylor		8	16.2	− 9.5	50	1	−17	29	41	2.30	+ 1.36	0.55	11.2	10	11	4	16	nw. E. E. Healy.
Charitton§	Lucas	1,042	13	16.2	−10.1	49	1	−14	29	39	2.45	+ 1.11	1.00	13.0	9	11	8	12	nw. C. C. Burr.
Clarinda	Page	1,009	18	15.0	−11.6	51	1	−14	30	41	1.88	+ 0.76	0.36	12.5	13	12	6	13	nw. H. S. Van Sandt.
Corning§	Adams	1,117	16	14.4[a]	−12.7	49	1	−17	29	42[b]	2.38	+ 1.24	0.96	10.0	5	14	5	12	nw. Jerome Smith.
Corydon§	Wayne	1,101	15	17.4	− 9.3	49	1†	−13	29	41	2.14	+ 0.72	0.61		13	14	3	14	nw. Clara Miller.
Creston	Union	1,312	3	16.4		49	1†	−16	29	41	1.96		0.53		6	13	2	16	ne. Edgar Stovall.
Cumberland	Cass		9								1.80	+ 0.78	0.80	13.0	5	13	3	15	n. J. H. Reppert.
Denison	Crawford	1,180	13	14.4	− 9.1	46	1†	−15	29	34	1.90	+ 1.31	0.50	17.2	13	12	4	15	n. W. C. Van Ness.
Elliott	Montgomery		3	15.8		48	1	−16	29	36	1.80		0.50	13.0	8	12	7	12	w. Henry Barnes.
Hancock§	Pottawattamie	1,113	2	14.0		46	1	−17	29	36	1.66		0.50	12.6	7	13	2	16	nw. G. C. Rogers.
Harlan§	Shelby	1,192	9	13.5	−10.5	46	1	−18	29	33	1.81	+ 0.91	0.46	16.5	15	8	7	16	nw. C. A. Reynolds.
Hopeville	Clarke		17	16.4	− 9.8	50	1	−14	29	37	2.07	+ 1.01	0.63		13	7	7	17	nw. M. T. Ashley.
Inwood§	Lyon	1,474	4	10.6		45	1	−26	29	38	1.65		0.53	11.0	16	13	8	10	w. F. B. Hanson.
Lamont	Decatur			17.6		53	2	−13	29	38	2.60		0.88	14.0	11	12	2	17	nw. T. J. Fitzpatrick.
Larrabee	Cherokee	1,266	17	12.6	− 9.7	44	1†	−21	29	35	1.84	+ 0.88	0.60	15.7	16	12	6	13	nw. H. B. Strever.
Le Mars§	Plymouth	1,224	12	13.1	−10.6	46	1	−16	29	39	1.04	+ 0.22	0.31		12	10	8	13	nw. G. A. C. Clarke.
Lenox§	Taylor	1,250	13	15.6	− 9.7	50	1	−17	29	35	1.72	+ 0.65	0.50	8.1	11	17	2	12	nw. J. L. Hurley.
Leon	Decatur	1,120	6	16.6	−10.0	51	1	−14	29	37	3.27	+ 2.00	0.80	12.2	13	4	11	16	nw. Morris Gardner.
Little Sioux§	Harrison		4	13.4		47	1	−22	29	47	1.62		0.40	13.0	8	9	5	17	nw. Geo. H. Gibson.
Logan§	do	928	42	13.8	−11.4	47	1	−16	19†	39	1.93	+ 0.66	0.41		11	12	4	15	ne. Glen H. Stern.
Mt. Ayr§	Ringgold	1,236	15	16.8	− 9.1	51	1	−14	29	36	2.63	+ 1.34	0.85	9.5	12	13	4	14	nw. A. F. Beard.
Odebolt§	Sac	1,356	10	14.2	− 9.3	46	1	−16	29	38	1.21	+ 0.37	0.37	9.0	7	14	3	14	E. Starner.
Onawa§	Monona	1,051	8	16.1	−10.1	47	1	−13	29	41	1.77	+ 0.86	0.30	13.5	13	12	2	17	nw. C. G. Perkins.
Pacific Junction§	Mills	960	9	14.4	−11.9	48	1	−18	29	44	2.37	+ 1.55	0.60	18.3	11	10	9	12	n. H. H. McCartney.
Rock Rapids§	Lyon	1,358	9																W. C. Wyckoff.
Sheldon§	O'Brien	1,422	8	11.9	−10.3	45	1†	−20	29	37	3.40	+ 2.59	0.50	2.9	19	7	5	19	w. Dr. A. W. Beach.
Sibley	Osceola	1,212	15	10.1	− 9.5	43	1†	−20	29	55	1.39	+ 0.61	0.50	9.5	9				nw. Francis C. Doolittle.
Sioux Center§	Sioux		9	12.0	− 9.7	45	1	−19	29	40	0.90	− 0.11	0.20	8.5	7	8	0	23	w. J. Deruyter.
Sioux City	Woodbury	1,135	20	12.8	− 9.8	45	1	−15	29	37	1.04	+ 0.30	0.35	8.3	15	8	7	16	nw. U. S. Weather Bureau.
Thurman§	Fremont		11	14.6	−10.9	48	1	−18	19	40	2.07	+ 0.68	0.64	13.9	12	9	8	14	nw. C. R. Paul.
Washta§	Cherokee	1,157	10	13.2		50	1	−21	19	32	1.05	+ 0.20	0.30	8.5	8	6	11	14	nw. H. L. Felter.
Woodburn§	Clarke	961	9	16.6		62	1	−15	29	41	2.09	+ 0.84	0.56	16.0	12	10	4	17	nw. C. B. McDonough.
Kansas.																			
Abilene	Dickinson	1,157	14								1.42	+ 0.55	0.44	9.3	7	11	7	13	w. J. H. Sherman.
Agricultural College	Riley	1,100	51	21.3	− 9.4	53	1	− 9	29	38	2.19	+ 1.35	0.63	8.1	7	18	2	11	nw. J. O. Hamilton.
Alton	Osborne	1,651	7	17.3		51	1	−12	8	36	1.83	+ 1.30	0.49	13.5	7	12	12	7	nw. H. A. Storer.
Atchison	Atchison	973	18	20.8	−10.3	54	1	− 5	29	27	1.65	+ 0.08	0.50	8.5	5	14	4	13	w. M. F. Troxell.
Baker	Brown	1,182	9	17.1[i]		40[i]	1†	− 5[i]	9	26[i]	2.05		0.80	8.0	3	1	0	18	n. E. A. Bastien.
Beloit	Mitchell	1,383	14																W. H. Houghton.
Blakeman	Rawlins	2,894	1	18.0		49	31	−17	7	44	1.47	+ 1.04	0.54	8.0	9	13	6	12	nw. C. L. Henderson.
Blue Rapids	Marshall	1,105	3																M. Norton.
Centralia	Nemaha	1,256		17.9		48	1	− 9	29	42	3.15		1.50	4.5	9	17	3	11	nw. L. E. Hazen.
Chapman	Dickinson	1,123	5	21.0		52	1	− 7	8	42	2.06		0.75	8.0	5	18	3	10	nw. R. McShea.
Clay Center	Clay	1,203	8	18.8		52	1	−10	8	35	1.45		0.40	9.0	6	15	1	15	n. O. L. Slade.
Colby	Thomas	3,138	18	18.4	−11.7	51	31	−14	7	35	0.56	+ 0.20	0.36	6.7	5	9	12	10	nw. R. M. Chelf.
Concordia	Cloud	1,398	25	18.3	−11.4	50	1	− 6	8	32	1.15	+ 0.67	0.48	10.2	8	10	10	11	nw. U. S. Weather Bureau.
Densmore	Norton	2,200		18.7		52	2	−15	7	45	0.48		0.30	6.5	5	15	8	8	nw. F. S. Griffith.
Dresden	Decatur	2,731	15	18.9	−12.2	49	1	−12	7	38	2.06	+ 1.62	0.73	15.5	5	14	2	15	nw. Jacob Bock.
Ellsworth	Ellsworth	1,537	5	21.0		52	1	− 7	8	42	0.59		0.12	4.0	6	11	11	9	s. George Seitz.
Enterprise	Dickinson	1,144	7	20.6		54	1	− 5	7†	41	0.98	+ 0.11	0.45	5.0	5	12	9	10	nw. G. F. Wagner.
Eskridge	Wabaunsee	1,412	3	21.2		52	1	− 6	8	37	1.92		0.75	8.8	7	14	5	12	w. G. D. West.
Farnsworth	Lane	2,850	8	21.4		56	30†	−11	8	45	1.00		0.48	8.9	6	20	4	7	nw. C. M. Jennison.
Ft. Scott	Bourbon	857	13	24.0	−10.7	59	3	− 5	8	35	2.51	+ 0.62	1.06	7.5	5	22	0	9	nw. E. A. Shaver.
Frankfort	Marshall	1,146	15	19.0	−11.7	52	1	− 7	8†	40	2.87	+ 1.95	1.20	10.0	9	11	10	10	nw. E. C. Dunham.
Garnett	Anderson	950	3																J. S. McCartney.
Goodland	Sherman	3,687	3																G. L. Calvert.
Gove	Gove	2,750	20	24.6	− 7.4	67	31	− 6	7		2.10	+ 1.57	0.90	4.0	5	9	9	13	nw. Jesse Royer.
Hanover	Washington	1,225	6	18.1		50	1	− 9	9	38	2.49	+ 1.98	0.87	9.4	9	17	2	12	nw. August Jaedicke, jr.
Harrison	Jewell	1,804	8	15.7		50	1	−15	9	38	1.64		0.43	13.8	8	16	5	10	n. Mahlon Tegley.
Hays	Ellis	2,000	21	21.0	−10.7	58	28	− 8	7†	50	1.00	+ 0.59	0.42	9.5	4	11	14	6	nw. G. K. Helder.
Hill City	Graham	2,134	1	20.8		55	2	−12	7	45	1.05		0.35	8.5	6	17	3	11	nw. L. R. Mort.
Horton	Brown	1,188	20	19.0	−11.8	49	1	− 6	29	37	2.25	+ 1.36	0.81	8.5	8	11	6	14	nw. Mrs. S. C. Belden.
Hoxie	Sheridan	2,700	12	19.8	−10.8	50	30†	−10	7	40	0.47	− 0.03	0.17	5.0	5	19	3	9	nw. C. T. Dallam.
Jewell	Jewell	1,540	4	17.1		50	1	− 9	7	34	2.19		0.54	17.0	7	19	5	7	n. C. A. Shinn.
Lawrence	Douglas	874	12	22.6	− 8.6	56	1	− 1	29	30	2.39	+ 1.02	0.98	6.3	8	12	6	13	nw. H. P. Cady.
Lebanon	Smith	1,812	11	17.2		49	1	− 8	6	29	1.23	+ 0.72	0.35	10.5	5	10	3	18	n. Dr. W. C. Bower.
Lindsborg	McPherson	1,333	3																J. R. Lynch.
Manhattan	Riley	1,014	19	21.0	−11.5	53	1	− 5	29	39	2.27	+ 1.71	0.51	12.6	8	13	0	18	w. Dr. C. P. Blachly.
Mankato	Jewell	1,784		17.2		50	1	− 8	7	36	1.85		0.80	10.7	6	18	1	12	n. R. M. Cauthorn.
Minneapolis	Ottawa	1,259	19	19.6	−12.0	51	1	−10	8	34	1.17	+ 0.54	0.49	10.0	5	13	4	14	nw. J. L. Steele.
Moran	Allen	1,098	13	25.4	− 7.8	59	1	− 5	8	35	2.20	+ 0.28	0.97	6.0	7	17	2	12	nw. C. J. Norton.
Norton	Norton	2,284	11	17.8	−13.1	49	1	−12	8	36	1.31	+ 0.91	0.60	13.5	5	10	16	5	nw. H. A. Sieffel.
Oberlin	Decatur	2,539	18								0.97	+ 0.36	0.43	9.8	10	16	10	5	nw. I. K. Huber.
Oketo	Marshall	1,194	1								2.70		0.95	5.6	8	14	13	4	ne. J. A. Church.
Olathe	Johnson	1,032	14	22.1	− 9.3	56	1	− 5	9	39	2.23	+ 0.93	1.07	7.5	5	11	8	12	nw. Dr. S. B. S. Wilson.
Osage City	Osage	1,081	9	23.5[c]		53[c]	1	− 2[c]	8	37[c]	1.97	+ 0.86	0.88	6.0	5	12	0	16	nw. W. C. White.
Ottawa	Franklin	926	15	22.2	− 9.5	57	1	− 8	8	43	2.34	+ 1.21	0.98	6.5	4	15	5	11	nw. Dr. W. J. Norton.
Phillipsburg	Phillips	1,939	16	18.2	−12.7	49	1	−11	7†	39	1.63	+ 0.99	0.40	13.5	5	18	7	6	nw. N. E. Bailey.
Pleasanton	Linn	862	7	24.5		57	1	− 3	8†	31	2.62		0.91	5.5	6	15	2	14	nw. B. F. Blaker.
Republic	Republic	1,495	7																F. B. Potter.
St. Francis	Cheyenne	3,288	1	18.0		47	31	−16	5	36	1.75		0.80	9.5	7	13	7	11	nw. J. E. Uplinger.
Salina	Saline	1,227	24	21.2	− 9.9	54	2	− 6	8	33	0.90	+ 0.15	0.32	6.0	7	14	7	10	n. Prof. A. W. Jones.

TABLE 1.—*Climatological data for December, 1909. District No. 6*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Kansas—Cont'd.																			
Scott	Scott	2,971	3	22.9	.....	60	30	− 8	7	40	1.07	.....	0.28	9.3	6	10	14	6	n.	J. B. Loughran.
Topeka	Shawnee	997	23	21.2	− 9.9	53	1	− 1	29	32	2.17	+ 1.29	0.71	8.8	8	14	4	13	nw.	U. S. Weather Bureau.
Valley Falls	Jefferson	913	10	21.2	− 9.8	53	1	− 7	29	44	2.36	+ 1.77	0.90	6.2	10	15	3	13	nw.	Miss Nettie Maxwell.
Vinland	Douglas	880	...	23.2	.....	54	1	− 6	8†	43	1.60	.....	0.58	4.8	4	11	7	13	nw.	A. Schick.
Wakeeney	Trego	2,456	5	20.6	−11.1	57	28	− 9	7	42	0.80	+ 0.22	0.33	8.0	4	21	2	8	nw.	A. S. Peacock.
Wallace	Wallace	3,303	39	19.9	.....	50	31	−13	5	40	0.29	− 0.15	0.04	8.5	6	6	15	10	nw.	M. T. Griggs.
Wamego	Pottawatomie	1,002	16	.....	.....	.....	.....	.....	.....	.....	2.60	+ 1.91	0.75	10.0	6	13	5	13	nw.	M. L. Stone.
Missouri.																			
Albany	Gentry	.....	2	.....	.....	.....	.....	.....	.....	.....	2.10	.....	0.95	8.0	5	13	4	14	n.	W. E. Elder.
Amoret	Bates	850	....	24.7	.....	60	1	− 5	8†	44	0.98	.....	0.45	8.5	4	17	0	14	w.	C. L. Glassmire.
Appleton City	St. Clair	853	18	26.1	− 8.8	69	2	− 7	8	44	1.40	+ 0.51	1.00	6.0	2	12	14	5	sw.	T. C. Brown.
Arlington	Phelps	695	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	P. W. Andres.
Arthur	Vernon	767	16	27.6	− 6.5	66	1	−10	8	46	2.64	+ 0.54	0.87	7.0	6	14	10	7	nw.	J. T. Armstrong.
Avalon	Livingston	.....	24	20.2	−10.5	57	1	−10	29	41	3.63	+ 2.00	1.41	10.0	8	13	5	13	nw.	F. G. Ashbaugh.
Bagnell	Miller	594	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. S. Brockman.
Bethany	Harrison	881	19	19.9[b]	− 9.4	68[b]	1	−10[b]	29	37[b]	3.67[b]	+ 2.21	1.28[b]	10.0[b]	6[b]	18[b]	2[c]	8[c]	nw.	W. H. Skinner.
Bolivar	Polk	1,070	21	27.0	− 9.6	70	3	− 7	8	50	2.83	+ 0.34	1.25	9.0	8	14	10	7	nw.	E. Waltz.
Boonville	Cooper	600	33	.....	.....	.....	.....	.....	.....	.....	2.78	+ 0.74	1.10	3.4	8	10	3	18	nw.	C. Randecker.
Brunswick	Chariton	651	30	21.2	−11.5	60	1	− 9	29	42	3.80	+ 2.14	1.57	7.5	10	12	2	17	w.	Louis Beneke.
Clinton	Henry	800	7	25.2	.....	60	1†	− 6	8†	35	3.67	.....	1.37	8.0	7	14	11	6	w.	Dr. G. W. Menees.
Columbia	Boone	784	18	22.8	−10.1	57	4	− 8	29	40	3.60	+ 1.59	1.63	8.7	12	10	9	12	w.	U. S. Weather Bureau.
Conception §	Nodaway	982	24	17.7	−12.8	52	1	−11	29	41	1.56	+ 0.48	0.61	7.5	7	9	9	13	nw.	Fr. Adhelm Hess.
Darksville	Randolph	826	18	21.1	−10.2	56	1	−12	29	42	2.73	+ 1.21	0.85	12.2	6	14	2	15	w.	W. H. Broadelus.
El Dorado Springs	Cedar	750	3	28.4	.....	66	3	− 9	8	49	3.32	.....	1.30	11.0	7	14	6	11	nw.	Samuel Graham.
Fairport	De Kalb	920	15	.....	.....	.....	.....	.....	.....	.....	2.04	+ 0.89	0.74	9.1	5	15	0	16	nw.	J. W. Lincoln.
Fayette §	Howard	725	26	22.1	−10.7	56	1	− 7	29	42	2.96	+ 1.21	0.86	10.0	9	12	2	17	.....	T. Berry Smith.
Fulton	Galloway	818	18	24.7	− 8.4	58	2	−15	30	53	2.83	+ 0.68	1.04	7.4	8	6	14	11	w.	Mrs. Ruth McKinney.
Gallatin	Daviess	803	16	.....	.....	.....	.....	.....	.....	.....	4.11	+ 2.64	1.20	19.1	10	16	5	10	sw.	Dr. W. P. Young.
Glasgow	Howard	618	30	.....	.....	.....	.....	.....	.....	.....	3.73	+ 1.90	1.54	.....	11	12	3	16	nw.	J. J. Shaughnessy.
Grant City	Worth	1,130	17	18.2	.....	52	1	−13	29	39	2.00	+ 0.86	0.57	11.0	10	11	3	17	nw.	W. H. Campbell.
Harrisonville	Cass	912	37	20.4	−11.0	57	2	−11	9	44	3.32	+ 1.48	¶1.45	11.0	7	10	1	20	w.	A. J. Sharp.
Hazelhurst	Livingston	.....	16	.....	.....	.....	.....	.....	.....	.....	3.35	+ 1.88	1.22	8.9	10	.....	.....	.....	.....	W. H. Baker.
Hermann	Gasconade	482	35	.....	.....	.....	.....	.....	.....	.....	2.77	+ 0.89	1.38	11.0	12	8	11	12	w.	C. T. Maushund.
Houston	Texas	1,280	17	27.2	− 9.4	67	4	− 2	9	43	2.51	+ 0.42	0.60	6.0	8	7	17	7	nw.	E. Dempsey.
Huntsville	Randolph	790	6	.....	.....	.....	.....	.....	.....	.....	2.25	.....	1.00	.....	4	.....	.....	.....	.....	F. H. Hammett.
Jefferson City	Cole	628	27	21.7	−12.2	58	1†	− 7	29	52	2.97	+ 1.03	1.20	9.2	9	14	2	15	w.	Miss Emma Swift.
Kansas City	Jackson	963	21	22.2	− 9.3	55	1	− 1	29	31	2.47	+ 1.11	1.21	8.9	10	9	8	14	nw.	U. S. Weather Bureau.
Kidder	Caldwell	1,017	16	20.2	− 9.2	56	1	−10	29	24	2.73	+ 1.30	0.88	9.9	11	14	4	13	sw.	J. F. Sharp.
Lamonte	Pettis	863	21	23.6	.....	60	1	− 9	8†	40	2.54	+ 0.72	0.84	8.0	7	11	10	10	nw.	J. R. Wade.
Lebanon	Laclede	1,265	20	26.6	− 9.4	63	3	− 3	8†	31	2.49	− 0.32	1.10	3.2	6	12	8	11	nw.	M. W. Serl.
Lexington	Lafayette	813	27	22.4	− 9.3	58	1	− 5	29	38	3.77	+ 1.99	1.58	7.0	8	16	0	15	n.	J. W. Keithley.
Liberty	Clay	864	21	18.4[d]	−13.9	47[d]	2	− 5[d]	29†	34[d]	0.80[d]	− 0.65	0.45[d]	8.0[d]	2[d]	10[d]	2[d]	15[d]	nw.	J. W. Kyle.
Lockwood	Dade	1,088	14	27.1	.....	67	3	− 3	8†	34	3.59	+ 1.80	1.07	6.0	7	18	4	9	nw.	C. S. Crow.
Marshall	Saline	779	18	22.0[b]	− 9.5	60[b]	1	− 8[b]	29	41[b]	2.95	+ 1.23	0.95	7.0	8	11[b]	8[b]	10[b]	nw.	W. H. Black.
Marshfield	Webster	1,492	....	29.4[d]	.....	68[d]	1	− 5[d]	8	47[d]	1.20[d]	.....	0.90[d]	3.0[d]	2[d]	8[d]	8[d]	15[d]	w.	Dr. J. P. Keller.
Maryville	Nodaway	1,160	19	16.2	−10.3	52	2	−11	29	46	28.2	+ 1.69	0.53	13.5	12	13	4	14	n.	J. R. Brink.
Mt. Vernon	Lawrence	1,480	33	28.2	− 9.2	68	5	− 4	8	50	2.97	+ 0.30	1.40	5.0	7	8	15	8	nw.	Dr. O. H. Brown.
Nevada	Vernon	869	15	.....	.....	.....	.....	.....	.....	.....	2.89	+ 0.84	0.88	6.0	7	15	7	9	nw.	C. Jewell.
New Palestine	Cooper	795	17	.....	.....	.....	.....	.....	.....	.....	2.28	+ 0.75	0.98	6.4	6	14	9	8	nw.	A. I. Zelgle.
Oregon	Holt	1,113	54	17.8	−10.8	51	1	−11	29	43	2.05	+ 0.51	0.76	12.0	6	13	4	14	nw.	Tom Curry.
Osceola	St. Clair	738	9	.....	.....	.....	.....	.....	.....	.....	2.86	.....	0.99	6.0	4	22	1	8	sw.	W. E. Matthews.
Parkville	Platte	.....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Prof. A. D. Wolfe.
Rolla	Phelps	1,092	28	26.6	.....	65	4†	− 5	30	44	2.53	+ 0.14	0.70	6.0	9	11	9	11	nw.	Prof. P. J. Wilkins.
St. Charles	St. Charles	614	31	25.2	−10.1	61	2	− 8	3	38	2.10	+ 0.02	0.70	10.5	6	9	8	14	nw.	L. C. Saeger.
St. Joseph	Buchanan	825	37	21.2	.....	53	1	−10	29	41	1.46	+ 0.45	0.60	7.6	9	14	5	12	w.	Grant Forbes.
St. Louis	.....	567	39	26.4	− 9.2	62	5	− 1	29	38	1.89	− 0.34	0.46	9.1	13	4	3	24	w.	U. S. Weather Bureau.
Sublett	Adair	1,000	29	20.4	− 8.8	50	1†	−11	29	41	6.17	+ 4.62	2.50	9.2	6	10	4	17	w.	Erres Spriggs.
Trenton	Grundy	812	14	21.2	− 8.7	57	1	− 9	29	34	3.09	+ 1.71	1.10	7.4	10	12	2	17	nw.	J. H. Flesher.
Unionville	Putnam	1,072	16	16.5	−11.7	50	2	−12	29†	42	3.88	+ 2.26	1.70	11.5	9	11	2	18	nw.	Geo. W. Davis.
Versailles	Morgan	1,021	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Warrensburg	Johnson	883	30	24.5	− 9.6	59	1	− 7	9	37	2.99	+ 1.17	0.99	6.5	7	13	6	12	nw.	Prof. S. F. Prince.
Warrenton	Warren	865	19	22.2	−10.5	60	4	− 6	30	40	2.28	− 0.06	0.60	12.0	10	8	6	17	nw.	John H. Frick.
Warsaw	Benton	700	5	27.4	.....	68	3	−6	30	50	3.26	.....	0.75	10.0	8	12	11	8	w.	Dr. J. R. Smith.
Wheatland	Hickory	920	17	.....	.....	.....	.....	.....	.....	.....	1.79	− 0.66	0.88	6.0	6	10	14	7	w.	Mrs. S. A. Jackson.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
¶ Estimated by observer.
‖ ‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for December, 1909. District No. 6, Missouri Valley.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Wyoming.																																	
Arapahoe	Big Horn										.35			.20			T.										.10					1.40
Barnum	Powder	T.		.75																							.07					1.37
Basin	Big Horn	.17	.43								.21			.07	.11		.31		T.													
Bennett	North Platte																															0.66
Cheyenne	South Platte	.01	.24	.09	.02		.01				.01	T.		T.	.09		.09				.03	.03		.04			T.					
Cheyenne Exp. Farm	do																															1.30
Chugwater	North Platte		.30	.10	T.							.20			.20		.40							T.	.10			T.				
Clark	Clark's Fork																															
Crystal Lake Reservoir	South Platte																															
Douglas	North Platte																															
Dubois	Big Horn																															5.00
Eaton's Ranch	Tongue		1.00	.40							.50			.00	.80		.80		.20	.30	.20						.20				T.	1.98
Echeta	Powder		.04								.64				.30		.40		.30	.20			.10									1.85
Elk Mountain	North Platte	.01	.27	.02	T.			.04	T.	.40	.10	.17		T.	.51		.17	T.			.01		.01	.02	.07			.23				T.	0.28
Encampment	do																															
Ervay	do																															
Filmore	do																															
Fort Laramie[1]	do			.07	.14	.08						.09	.03				T.								T.			.03				0.44
Gillette	Powder	.15	T.	.05	T.						.60	.60	T.	.15	.30	.10	.20			.10							.05	T.				2.30
Granite Canyon	South Platte		.15	.10	T.						T.		.10		.05	.20	.05				.00	T.		T.								0.74
Hunter's Station	Powder		.54	.30	.08						.12			.41	.12		.28															1.85
Hyattville	Big Horn																															
Independence	North Platte																															
Kayoee	Powder																															
Kirtley	Niobrara			.30								.20		.23		.50												.13				1.36
Kirwin	Big Horn																															
Knowles	Belle Fourche	.11		.11								.41	.25		.33	.20	T.	.24		.21							.09		.47			2.42
Lander	Big Horn																															
Laramie	North Platte	.03	.02	.03			.10				T.			T.					T.					.06								0.24
Leo	do	.02	.21	.02		.01	.02			.02	.03	.22		.10	.12		.10				.03		T.									0.90
Lolabama Ranch	Clark's Fork				.20	.08									T.				.04	.06							.04					0.28
Lovell	Big Horn		.04	T.																												0.18
Lusk[1]	Niobrara																															
Luther	South Platte		T.	.40	.40					.10																						0.90
Manville	Niobrara																															
Moorcroft	Belle Fourche																															
Moore	North Platte										.25			.30	T.	T.	.20			.10							.10	.20	.30			1.65
Newcastle	S. Fork, Cheyenne		.10	.10							.10				.05		.05			T.		T.		T.	T.							0.59
Pathfinder	North Platte		.07	.12	.20						.10	.20			.10		.10															1.00
Phillips	do		.20	.20	.10																											
Pine Bluff	South Platte																										T.	.09				0.31
Powell	Big Horn		.09	T.							.02			.11			T.		T.													
Riverton	do											T.			.15		.15							.04							T.	0.51
Saratoga	North Platte		.03	.06	.04		.04																				.07				.06	1.25
Sheridan, (1)	Tongue		.34	.04	T.		T.	T.			.25	T.	.01	.16	.05	T.	.25		.01	.01	T.											2.50
Sheridan, (2)	do		.25	.20							.60			.05	.40		.80										.20					0.33
Shoshone Dam	Big Horn		.04	.05													.16			.08												3.10
Soldier's Home	Powder	.10	.80	.20							.20			.30	.40		.60			.40							.10					
South Pass City	North Platte										.35			.15		.07				.03												1.00
Thermopolis	Big Horn		.26	.14								.32	.12	.25	.15	.30	.15				.02	.05					.10	.01				1.59
Upton	S. Fork, Cheyenne	.10					.02														.01											0.09
Valley	Big Horn		.08																							.20						2.10
Verona	Tongue	.20	.20	.20							.80		.20				.15			.15												
Wiley	Big Horn																										T.					0.37
Wyncote	North Platte		.06	.16			T.				T.		.15		T.		T.									T.	.01			.01	.33	1.27
Yellowstone Park	Yellowstone	.01	.46	.03	T.	.03	.02	T.	.01	.02	.01	.01	.01	.03	.03	T.	.16	T.	.03	.01	T.					T.	.01					
(1) Fountain	Madison																															
(2) Grand Canyon	Yellowstone																															
(3) Lake Yellowstone	do																															
(4) Norris Geyser B.	do																															
(5) Riverside	Madison																															
(6) Soda Butte	Yellowstone																															
(7) Sylvan Pass	Big Horn																															
(8) Thumb	Yellowstone																															
(9) Tower Falls	do																															
(10) Up. Geyser Basin	Madison																															
Montana.																																0.15
Adams	Yellowstone			T.	T.			T.			.02			.01			.03		.03			.01					.01	.01	.03			2.45
Adel	Missouri			.10						T.			T.	.15			.40		T.	1.50	.20										.10	0.90
Agricultural College	Gallatin		.30	.02		T.		T.			.18	T.		.11			.06	T.	.11	.10	.02						T.				T.	0.59
Augusta	Sun River		T.	.10	T.	.10			T.	.05							.12	.10	.10	.02												1.25
Babbill	Milk River		.15																T.		.80	.10									.20	0.91
Bald Butte	Missouri		.05	.15	.01	.04				.11	T.		.05				.09	.02		.14	.06					T.	.08				.14	1.17
Big Creek	Yellowstone		.32								.23			.15			.21		.14									.12				0.51
Billings	do	T.		.40	T.						T.	.10		T.				.01		T.	T.											0.95
Boulder Nursery	Jefferson				.20		.10										.40	T.	T.	.25						.02			.04		.04	0.44
Bowen	do		T.			.06	.02	.01	.04	.13	.02		.04	.01	.01			T.									.23	.06				0.63
Bridger	Yellowstone	.02	.25	.07								.36		.08	.09		.07															1.04
Broadview Exp. Stat'n	do		.90	.14																												
Browning	Marias											.10	T.		.24	.09		.04		T.	.13	.05					.14					1.05
Busby	Yellowstone	.05	.07	.07	.07							.01			.02	.02		.10				T.					T.					0.67
Busteed	do	T.	.34	.16	.02			T.						T.			.10	T.	.05												.70	1.20
Butte	Jefferson	.05	T.	T.	T.	T.				.10						.10	.20	T.	.05												T.	0.11
Canyon Ferry	Missouri		.01	T.									T.	.01			.03	.07													T.	0.91
Cascade	do		.03	.10	.07	.03	T.			T.			T.	.01			.03	T.		.58	.06	T.									.31	0.93
Cataract Creek[1]	Jefferson							.11				.21	.02	.03	T.		.01	T.	.02							.22						1.00
Chessman Reservoir	Missouri													T.			.25			.40	.10						T.				.25	
Chester	do																															0.18
Chinook	Milk River		.02	.02						.11										.03												0.75
Chouteau	Missouri					.20						.15								.10		.15	.15									
Clear Creek	Milk River																															
Clemons	Missouri		.02	.04	.02	T.											T.	.03	.02	.05	.03	T.								T.	.04	0.25
Columbus	Yellowstone																															
Copper	Musselshell		.10	.14	T.	T.	T.			T.	.18	.12	.10	.08	.11		.40	T.	T.	T.							T.				.07	1.30
Crow Agency	Big Horn																															
Culbertson	Missouri																															0.26
Cut Bank	Marias				T.						.21									.05												1.00
Decker	Tongue	.40			.20												.20										.20					
Deep Creek	Missouri									T.		.04		.01			.01					T.					.02				.05	0.23
Delphine	Musselshell		.10	T.																												
Denton	Missouri																														T.	0.93
Dillon	Jefferson		.21	T.	T.	T.	.07	T.			.40						.15	T.		.08	T.	.02									T.	0.47
Dirty Creek	Musselshell		.08	.07	T.	T.	T.	.03		.02	T.		.02	.06			.12			.02	T.						.05					
Dry Creek	Missouri																															

TABLE 2.—*Daily precipitation for December, 1909. District No. 6*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Montana—Cont'd.																																	
Dry Wolf Camp	Missouri		.35	.12	.01						.04			.30	.05		.22		T.	.20	.07					.11					.08	1.55
E. Gallatin River	Gallatin		.21	.10		T.		T.			.44		.03	.19	.07		.06		T.	.08	.03										.03	1.24
Ekalaka	Little Missouri	.13										.08		.14	.06		.12			.04							.04					0.61
Elkhorn	Jefferson		.03	.18	T.	.04	T.	T.	T.	.04	.02		T.	.03			.18	T.	.03	.03	.01						T.				.02	0.61
Evans	Missouri		.20	.30	.20														.80	1.00	.60						.10				.30	
Fallon	Yellowstone			T.									.10							.05							.10					0.25
Family	Marias		T.							T.				T.			T.	.03		T.	.07										T.	0.10
Fish Creek	Jefferson	.34				T.		.52				T.					.42					.27										1.55
Fish Tail Creek	Yellowstone	.14	.48	.19													.01				.06						.01					0.89
Flathead Creek	do		.45			.09					.24			.50			.16										.16				.24	1.84
Forsyth	do		.40	T.						.02	.05		T.							.35										T.		0.82
Fort Benton	Missouri				.13				.40												.12											0.65
Fort Shaw	Sun River		.02	.02	.05	.05				.01							T.				.09										T.	0.24
Foster	Big Horn		.04	.04	.03						.02		*	.07			.01	T.	*	.03							.08					0.32
Garneil	Musselshell																																
Glendive	Yellowstone				T.						.13						.08		T.	.04	T.			T.			.09	.13				0.47
Goldbutte	Marias														.25			.02	.35			.02				.01						0.65
Graham	Powder	.10	T.	.03							.22	.16		.16	.03		.05	T.		.08	T.						T.		.03			0.86
Grayling	Madison							.08	.06	.13	.24		.19	.21	T.		.07															.17	1.15
Great Falls	Missouri		.06	.12	.02	.02				.08				.22			.10	T.		.05	.04	.04										T.	0.75
Half Moon Pass	Musselshell		.01	.09						.02	.03		.01	.08	.01		.12	.02	.08	.10						T.	.09				.01	0.67
Half Way House	Missouri		.33	.21							.29						.31	.24	.37						.11						.09	2.18
Harlowton	Musselshell	T.	T.	T.	T.	T.								T.				.15	.10			T.										0.25
Hassel	Missouri	.09		.16		.06											.05	.03														0.37
Havre	Milk River		.08	.05	.09	T.				.12	T.						T.			.06	.04	T.				.10					.02	0.56
Helena	Missouri	T.	.08	.17		.08		T.		T.	T.		T.	T.		T.	.11	.04	.03	.03		T.					T.				.05	0.59
Highwood	do		.13	.12					T.	T.	T.			1.03			.20			.88	.08						.05				.25	2.74
Homepark	Jefferson		T.			T.	.12	T.			.16						.05		.03													0.36
Huntley	Yellowstone		*	.60							.15									.31							.01				.16	0.75
Jones Canyon	Gallatin		.18							.47		.04	.50	.15		.34																2.16
Jordan	Missouri		.05	.05																							.01				.20	0.10
Kleinsmith Creek	Jefferson		T.	.04		T.				.08		T.		T.	.10		T.	.03	T.	.12							.01				.20	0.58
Lewistown	Missouri		.20						T.		T.		.03	.01			.20		.07	.10	.10						.20				.30	1.21
Livingston	Yellowstone		.27	.09		.08	.02						T.				T.			.03	.08						T.				T.	0.57
Lodge Pole Creek	do			.30	.27	.20				T.				.07			.62				T.						T.				T.	1.46
Lone Tree	Missouri													.25			.10			.40							.08				.35	1.30
Lost Horse Creek	Musselshell	.03	.12						.05					.02	.03	.01					.01	.01					T.					0.82
Lubec	Marias		.36	.10																												
Malta	Milk River										.08			T.			T.		*	.06						T.	.06				T.	0.40
Meadow Creek	Madison		.13	.04	.03	T.	T.			*																					.52	1.15
Melstone	Musselshell			.28							.35									.09												0.55
Mildred	Yellowstone			.30	.12									.04																		T.
Miles City	do			T.		T.		T.							T.						T.		T.				T.					0.37
Mill Creek	do		.01	.03	T.			T.			.01		.06	T.	.02	T.	.10		.02	.08								.01	.03			1.15
Moore	Missouri		.25			.05					.08			.20					.22	.33								.02				0.80
Mudd Creek	Jefferson		.13	.04	T.	T.	T.							.07			.21	.03	.13			.23				.08					.20	1.15
Norris	Madison									.25				.23			T.										.05					0.70
Nye	Yellowstone		.70																.12													
Olsen Creek	Jefferson			.18										T.			T.										T.				.05	0.25
Pipestone Pass	do	T	.07	.01	.01	.01	T.			T.	.02		T.	.03	T.		.03		.02		T.	T.										1.85
Poplar	Missouri										.05		T.	.10		.06	.24			.40		T.					.18	T.	.20			0.88
Raymond	do			.03	.02														.09		.43											0.76
Reber's Ranch	Yellowstone	*	.24							.20			T.				T.					.05	.04		T.			.20				0.49
Red Lodge	do																															
Reese Creek	Gallatin																															
Renova	Jefferson		.46	.05							.04		.03	.13	.04		.18		.03	.06							.03				.01	1.06
Rimini	Missouri																															
Ryegate	Yellowstone		.45								.03				T.		.14			.04		T.					T.					0.66
Sedan	do									.03	.12			.20						.02											T.	0.37
Springbrook	do									.12	.11				.09				T.	.11											.01	0.42
Stearns	Missouri										.15									.05		T.				T.	.09					0.21
Toknaill	Yellowstone	.09				.02					.05		.01	.02			.04	T.	.06	.03												
Toston	Missouri																															
Townsend	do			.17	.01	.03	.06	.04	.01		.10		.24	.06	.02		.04		.06	.03		.01					.03					0.88
Trail Creek	Yellowstone															.03	.15			.03	.12											1.79
Utica	Missouri																															
Valentine	Musselshell																															
Virginia City	Jefferson & Madison																															
Wall Rock Mountain	Missouri	.09				.02					.05		.01	.02			.04	T.	.06	.03						T.	.09				.01	0.42
Warm Springs Creek	Madison																															
W. Rosebud Creek	Yellowstone			17	.01	.03	.06	.04	.01		.10		.24	.06	.02		.04		.06	.03		.01					.03					0.88
Willow Creek	do		1.20	.23												.03	.15			.03	.12											1.79
Wolf Creek	Missouri		*	.50							.05		*	.08					.05													0.68
Wolf Point	do	T.																														
Woodville	Jefferson																															
North Dakota.																																
Aplin	Knife		.03								.11			.03					.03	.10	.04										.05	0.39
Beach	Little Missouri	.05	T.	T.				T.			.15	.20		.15	T.	.20					T.		T.				T.	T.	.10	.40	1.25
Berlin	James	.16		.07			.06				.24			.15		.07	.06			.12	.04					.16	.05					1.18
Berthold Agency	Missouri																															
Bismarck	do	T.		T.	.02			T.			.25	.07		.23						.02		T.	T.		.05	T.	.03	T.				0.67
Broncho	Knife	.12	.07	.12	.04			T.			.29	.05	.01	.27	.01		T.	T.		.01	T.	T.	T.			.03	.03	T.	T.			1.05
Buford	Missouri			T.	.08						.06	.09		.20	T.		.05	.20			T.	.01				.10	.12	.06				0.97
Coal Harbor	do		T.	T.	T.			T.			.10		T.	T.						T.	T.	T.				.10	.20					0.40
Dickinson	Heart	.20	T.	T.	.10	T.					.15				.25							.10					.10					0.65
Edgely	James	T.		.05	.54	.07		T.			.20	T.	.09	T.	.07			.05			.01		.01	T.			.05	.07				1.02
Ellendale	do	.28	.10	.07	.05						.04	.04			T.		T.			T.						T.						0.84
Epping	Missouri			.04	.03	.02					.15	.03	.13							.02	.03					.08	.10	.02				0.58
Fullerton	James	.28	.68	.40		T.	T.			.47	T.	.30		T.	.04		.28	T.		.06	.03	.02				.06	.05		.03			0.65
Haley	Grand	T.	T.	T.	.03	T.					.03	.15		.11	T.						T.	T.				.10	.15					2.70
Hettinger	Cannon Ball	.10										.20	.10	.20													.30					0.57
Howard	Missouri		T.	T.	.20						.60		T.	*	.40						T.		T.				.30	.25	T.			0.90
Jamestown	James	.39	.50		.10						*	.30		T.	.10												.05					1.75
Kulm	do																															1.44
Lamoine	Missouri	.60												.20	.40	.20						.10										1.50
Lamoure	James																															
Manfred	do	.20	.40	.20							.10	.10		.20	.15		.10				.10	.05					.05	.05				1.70
Marmarth	Little Missouri	.02	.01	.01	.02						.01	.05		.03		.01	.03			.05							.03		.02			0.29
Marstonmoor	James	.72	.30	T.							T.	.05	.10	.10	.10												T.			T.		1.37
Medina	do									T.	*	.12		T.					T.		T.	T.	T.			T.	.10	T.	.14			0.36
Medora	Little Missouri			T.	T.							.10		T.																		1.40
Melville	James		1.20	.10						.16	.06		.09	.14	.10	.03	.05			.07	.16	.08				.07	.26	.02				1.47
Mott	Cannon Ball		.05	.13							*	.10		.15	.10											.05	.05					1.30
Napoleon	Missouri	.50	.25	.10																												

TABLE 2.—*Daily precipitation for December, 1909. District No. 6*—Continued.

Stations	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
North Dakota—Cont'd.																																	
New England	Cannon Ball										.40	.25		.15	.68		.07				T.	T.	T.				.12	.05	T.				1.25
New Salem	Heart	.06	T.	.07							.40	.20		.60	.30													.40					2.10
Orange	Cannon Ball			.20							.40	.20		.20																			0.80
Palermo	Missouri										.30	.30		.30							T.	T.	T.				T.	T.					1.40
Steele	do	.20	.10	.20																													
Swartwood	Grand																																
Washburn	Missouri	T.	T.	.02	.06						.03	.08			.10		T.					.04						.03					0.36
Williston	do		T.	T.	.04						.18		T.	.07	.01						T.							.08	.08		T.		0.46
Wishek	do	.80	.25		T.			.20			T.		.15				.05			T.	.22		T.		.02	T.						1.69
South Dakota.																																	
Aberdeen‖	James	.10	.98	.10	.10	.20					.15	1.00		.05	.10	.10		.02			T.	T.					T.	.10	T.				3.00
Academy	Missouri	.51	.18	.21		.10					.02	.55	T.	.03	.03		T.					T.	T.				T.		.17				1.80
Alexandria	James	.65		.39							*	.54																				1.49
Andover	do																																
Ardmore‖	Cheyenne	T.	T.	.20	.20		.05					1.60	.20	T.				T.															2.25
Armour	Missouri	.50	T.	.20	.05	.10					.60		.10	.10		T.																	1.65
Ashcroft	Little Missouri																																
Belle Fourche	Cheyenne	.05		T.	.05						.09	.31			.05	T.	.02			.08	.02							T.	.05				0.72
Bowdle	Missouri																																
Brookings	Big Sioux	.24	.23		.02	.25					T.	.30	.10				T.			T.		T.					T.						1.14
Burke	Missouri	.40		.05	T.	T.					T.	.60		.30			.20		.10			T.						.20				1.85
Canton	Big Sioux	.40	.05	.10	T.	T.	T.				.60	*	*	*	.56		T.					T.	T.	T.	T.	T.	T.	T.					1.68
Cascade Springs	Cheyenne	T.		.25	.05						.15	1.20			T.		T.				T.		T.					T.	T.				1.65
Castlewood	Big Sioux	.28	.16	.02	.05	.22					T.	.05	T.		.01		.04	T.		T.	T.	T.	T.			T.	.02						0.85
Centerville	Missouri	.31	.14	.15	.10	.10	.40			T.	.30	.10	.40	.08	.04	.05	.05					.04	T.	T.	.04	.03	.02	.02	.05				2.42
Chamberlain	do	.50	.32								T.			.59														T.				1.61
Clark	James	.28	.14	.05		.25	T.	T.			.20	.40	T.	.10	.10	.10					T.	.05					.10		T.				1.77
Clear Lake	Big Sioux	.20	.06	.20		.10					.10	.70		.05	.05												.10						1.56
Clifton	Missouri																																
Cottonwood	do	.13	T.	.10	.01						.03	.09		.09	T.	T.	.06	T.		.02									.05				0.58
Daviston	do		T.	.10								.20	.20	T.																			0.50
Deadwood	Cheyenne			.35							.10			.45	.10		.70			.10								.10	1.50				3.40
De Smet	James	T.		.05	.05	.30	T.	T.			T.	.30		.20	.10		T.					T.					.20	T.					1.20
Dowling	Cheyenne	.10	T.	.30	.05						.25	.05		.10	T.		T.			T.	.20	.15						T.	.10				1.30
Dumont	do	.04		.13	.03		.05				.14	.35	.53	.34	.17	.21	.79	.41		.38	.04						.36	.29	.68				4.90
Elk Point	Missouri																																
Ellingson	do																																
Englewood	Cheyenne	.08	T.	.30	.03	T.					.04	.41		.66	.07	.11	.65	.09		.07	.04						.14	.18	.80				3.67
Eureka	Missouri	.60	.80	.10	.30							.20		.15	.15													.10					2.40
Fairfax	do																																
Farmingdale	Cheyenne																																
Faulkton	James	.21		.55							*	.36		.20													.14		T.				1.46
Flandreau	Big Sioux	.08	.80	.15		.50					*	*	.60				.10						T.										2.23
Forestburg	James	.45		.50				T.			T.	.40	T.	.10	T.		T.		T.			T.	T.				T.						1.45
Fort Meade	Cheyenne	T.		.20							.10	.40		.10	.10	.01	.10	T.		.20								T.	.10				1.31
Frederick	James																																
Gannvalley	Missouri	.20		.20	.30						.70	.60			.60																		2.60
Greenmont	Cheyenne	.11	*	.15							*	.20		*	*	*	*	1.83	*	.12							*	.28	.73				3.42
Greenwood	Missouri	.60		.20	.20		T.				.40	.20		.20									T.		.05			.05				1.90
Hardy Ranger Station	Cheyenne	T.		.16	T.						.19	.27		.78	.11	.60	.24	.80		.11	.10						.90	.32	.58				5.16
Hermosa	do		.10	.02	.02	.10			.09	.10				T.		T.				T.									.10				0.53
Highmore	Missouri	.22	.20	.07	T.					*	.18	.07	T.	.08	.05			.02				.02		.01			.02	.02	.05				1.01
Hill City	Cheyenne			.10	T.		.04				.02	.13					.03												.07				0.39
Howard	Big Sioux	.17	.37	.09	T.	.15	T.	T.			.04	.18	.05	.03	.08	T.	T.						T.	T.			T.	.02	T.				1.18
Howell	James	.02	.11	.06	.01	.25					.28	.40	.03	.20	.01		T.				T.	T.	T.				.02	.10	T.				1.49
Huron	do	.32	.10	.12	.06	.10		T.		T.	.27	.21	T.	.06	.05	T.	.01	T.	T.			.01	.01		T.		.02	.02	.01				1.37
Ipswich	do	.23		.20		T.					T.	.26	T.	.10			T.	T.									T.						0.79
Kadoka	White	.18		.08	T.						.06	.12		.02	.16	T.	.01			T.		T.					T.	.02	.09				0.74
Kennebec	Missouri	.27	.20	.20								.60	.10	.20		.10	.10					T.	T.				T.		.30				2.07
Kidder	James	.50	T.	.25		.20			T.	T.	T.	.35	.05	T.	T.						T.	T.		T.			T.	T.					1.35
Kimball	Missouri	.30	.40	.12								.30																	.10				1.22
La Delle	James	.25	.65	T.	.10	.15	T.				.22	.40	T.	.08	T.						T.	T.	T.	T.	T.		.10	T.	T.				1.95
Lead	Cheyenne	.28		.16	.07						.14	.09		.82	.08	.06	.59	.12		.07	.05						.08	.15	.75				3.51
Lemmon	Missouri	T.		.10						*	.20		*	.20	.10							.10						*	.20				0.90
Leslie	Cheyenne																																
Marion	Missouri		.50	.07		.23	T.	T.			.23	.67	.18	T.	.34	T.	.11					T.	T.		T.	T.	T.	T.	T.				2.33
Mellette	James	.40		.02	.04	T.		T.			.05	.38	.10	.03	.01	.03		.01					T.				.03	T.	.02				1.12
Menno	do	.52		.17	.16						.12	.36	.15	.07	.04		.06					.04	T.					.07					1.76
Mitchell‖	James	*	.55	*	.50						*	.55																					1.60
Murdo	White	.25											.60		.60														.60				2.05
Orman	Cheyenne		T.						T.	.40	.70				.10	T.													.10				1.30
Ottumwa	Missouri	.20									.10	.20			.20													.10	.30				1.10
Pierre	do	.30	.07	.12	.04						.05	.10		.24	.01		.01	T.				T.	T.				T.	.07	.09	T.			1.10
Plankinton	James	.73		.15	.22						*	.43		*	.20		.06					T.				T.	T.	.08					1.87
Pollock	Missouri																																
Rapid City	Cheyenne	.35	.04	.10	.03		.01			T.	.16	.12		.05	T.	T.	.08			.04	T.		T.					T.	.32				1.00
Redfield‖	James	.40	.50									.75														T.							1.65
Rosebud	White	.80	.30	.60	.10		T.			T.	.10	.40	T.	.30	.20	T.	.30	.10		T.	T.		T.				T.	.10	T.				3.30
Roslyn	Big Sioux	.60	.20	T.	.07	.20	T.	T.	T.		.05	.35	T.		.07	T.	T.			T.	T.	.05					.05	.10	T.				1.74
Running Water	Missouri																																
Savoy	Cheyenne	.13		.25	.11						.25	.14		.60	.12	.04	.20	.20		.18							*	*	.70				3.02
Selby	Missouri	.38		T.							*	*	1.20																				1.58
Sioux Falls	Big Sioux	1.10	T.		.30	T.		T.			.15	.40		T.	T.							T.		T.	T.	T.		T.					1.95
Spearfish	Cheyenne	.12	.20									.30	.01	T.			.04			.08								T.					0.75
Stephan	Missouri	.35	.10	.30	.05						.05	.30	.05	.08	T.		T.					.04	T.	T.				T.	.10				1.32
Tama	Cheyenne	.02	T.	.20	T.					T.	T.	.45	T.	T.	.20	.05	.05			.02								.02	.25	T.			1.26
Vale	do	.04	T.	T.	.10						.13	.40			.10		T.	T.		.20									.10				1.07
Van Metre	Missouri																																
Vermilion	do	.55	.30	.10	T.	.18					T.	.30	.14	T.	.16		.09					T.		T.	.02	.05		.03					1.92
Water's Ranch	Cheyenne	.35		.19	.08						.42			T.	.12		.14			.05	.02						T.	.02	.10				1.49
Watertown	Big Sioux	*	.54	T.						*	*	*	.95		T.						T.	T.		T.			T.	T.	.23				1.72
Wentworth	do	.49	.09	.12	.06	.11					.08	.36	.06		.06							.08					.16						1.67
Wessington Springs	James																																
White Lake	do		1.15		.50						.44																						2.09
Yankton	Missouri	.62	.09	.19	.25	.07	T.				.24	.20	.05	.13	T.		.03					T.	T.		.01			T.	.02				1.90
Minnesota.																																	
Pipestone	Big Sioux																																
Colorado.																																	
Akron	Republican											.40															.15						0.55
Alma	South Platte																																
Arriba	Republican																																
Auldhurst	South Platte			.41	.02												.16								T.								0.59
Barker	do																																
Boreas	do		.28	.42	T.	T.	T.	.08	T.	T.	.02		.20	.08				T.												.68			1.76

TABLE 2.—*Daily precipitation for December, 1909. District No. 6*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Colorado—Cont'd.																																	
Boulder	South Platte		T.	.65	.30	T.	.05			.01		.08					.50	.14								.04		.02					1.72
Burlington	Republican	.40		.20							.01	.01			.01		T.						T.	T.						T.	T.	0.70
Cassells	South Platte	*	.07	.39						T.							.10	.10				T.			T.							0.66
Castle Rock	do			.15															.78													0.93
Cheesman	do	T.	T.	.47											T.		.15	.05							T.							0.67
Cheyenne Wells	Smoky Hill			.27																												0.27
Como	South Platte																															
Cope	Republican			.30	.06		.60	.20			.60	.30			.60										.36							3.02
Corona‖	South Platte	.10	.74	.58	.08		.22	.06	.10		.04	.14				.10	.38	.30							.06			.66	.08	.04		3.68
Denver	do	.04	.05	.35	.01	T.	T.				T.				.02		.41				T.	T.	T.		T.							0.88
Edgewater	do			.68														.08														0.76
Estes P'k Fish H'y	do		T.	.29	T.									T.	T.	T.	T.	T.		T.	T.			T.	T.		T.	T.			.11	0.40
Fort Collins	do	T.	.18	.26	.02		T.							*	.04		T.				.05	.03										0.58
Fort Morgan	do	.01		.14							T.	T.			.06						T.						T.					0.21
Frances	do		.14	.29				.11			.07			.03				.04			T.			T.		*	.31			.08	1.07
Fry's Ranch	do		.18	.15	T.		T.						T.	T.	T.		T.				T.		T.		.09					.05	0.51
Georgetown‖	do	.23	.21	T.		T.							T.		.09		.08	T.			*	.09					T.				T.	0.44
Greeley	do	T.	*	*	.26		.01				T.		T.		.09		.02	.01				.01	.01	.10							.03	0.53
Hartzel	do		03.	.12	.03										.01		.16	.14														0.27
Hawthorne	do			.58	.02																											0.91
Holyoke (near)	do																										.02					0.39
Idaho Springs	do		.15	.22																												
Keota	do																															
Kossler	do																				.01	.10										0.52
La Porte	do		.18	.22											.01																	
Le Roy (near)	do	.23	T.	*	.10		.01			T.	.03	.56		.05	.05		T.			T.	T.				T.			.05				1.08
Longmont	do		.06	.25	.03										.20		.20	T.			.02	.02										0.78
Long's Peak (near)	do																															
Moraine	do																															
Platte Canon	do																															
St. Cloud	do	.03	.14	.21	.02						T.					.13	.04	T.			T.			T.								0.57
Sedgwick	do	.25		.15	.10	.10					.15	.10	.03		.03																	0.91
Sill Mine	do	.20	.58	.22	T.		T.	.28	T.	*	.14	.08	T.	.17	.11	*	.31				T.		T.	T.	.14	*	.21	.20		*	.16	2.80
Spicer (near)	North Platte	*	.13	.10	.10	T.				.01	T.	T.		.01	.03								.01	.03	.02						.03	0.47
Waterdale	South Platte			.21												.08		T.			T.	.05										0.34
Westlake	do			.40	T.										.10		.23				.03	T.										0.76
Wray	Republican	.25	.10	.18							.10	T.			T.								T.	T.								0.63
Yuma	do	.10		.08	T.					.30	.30																.15					0.93
Nebraska.																																
Ainsworth	Niobrara	*	.78	*	.30					T.	*	1.15	T.	.58	T.		T.								.03		T.	T.	.30			3.14
Alliance	North Platte																															
Alma	Republican	.32	.01	.30	.25		.55					T.	T.											T.	.10							1.53
Anoka‖	Niobrara		.22	.02		T.	T.				*	.63			.24									T.				.08			1.19
Ashland	Platte	.49	.13	.28	.31	.25	.13				T.	T.	.11	.02	.13								T.		.47	.11			.10			2.53
Atkinson‖	Elkhorn	.08	.03	.08				T.			T.	.40	.20	T.														.18			0.97
Auburn‖	Little Nemaha	.60	.14	.22	.24	.04	.01	.01			T.		.04	.02											.40				.10			1.82
Beatrice	Blue	1.45	.58	.40	.40	.30	.20				T.	T.	.10	T.		.02									.50							3.95
Beaver City	Republican	.40		.42	.25		.16					T.		T.		T.									.10				T.			1.33
Bellevue	Missouri																															
Blair	do	.40	.03	.21	.16	.40	.10				T.	.12	.13	T.	.20		.02					T.	T.		.52	.09		T.	.01			2.39
Bloomfield	do	.90	.10	.05	.05					.20	.10	.20	.10	.10																		1.80
Blue Hill	Republican																															
Bridgeport	North Platte		T.	.30	T.		T.				.30	.40		.85	.10		T.			T.				T.		T.						1.95
Brokenbow‖	Loup	.48			.14	.06	.35				*	.41																				1.44
Burge	Niobrara	.50	T.	.23	T.		T.			T.	T.	T.	T.	.24	T.	T.	T.			T.	T.						T.	.20	T.			1.17
Burwell	Loup																															
Callaway	do						33				.20		.19		T.	.40																1.12
Cambridge	Republican	.46		.36	.15		.13				T.	T.		T.		T.	T.							T.	T.	T.			T.				1.10
Canton (near)	North Platte		T.	.20			T.				*	1.05		T.	T.		T.					T.				T.						1.25
Columbus‖	Loup	.08	1.38		.08	.22		.12				.05	.10	T.	.15		T.						T.	T.	.06	.13			.04			2.41
Creighton	Missouri	.31	.35	.15	.53	.08					.14	.42	.29	.09	.10		.07									.05		.05	.20			2.83
Crete	Blue	1.75			.70		.70						.05												.50			.01				3.71
Culbertson‖	Republican	.30	.08	.40	.30	.10	.10	.20	T.	T.					T.	T.		T.	T.				T.	T.	.05	T.	.05			T.		1.58
Curtis	do	1.03	T.	.40								.40														T.		T.				1.83
David City	Blue	1.08	.45	.20	.08	.47	.17				T.	.10	.25	.06	.10		T.						T.	T.	.40	.08		T.	.04			3.48
Dawson	Great Nemaha	.73	.32	.28	.45	.02	.01			T.	.03	T.	T.	T.				T.							.36	T.						2.20
Duff	Loup																															
Elsie	Republican																															
Enderslake‖	Loup																															
Ewing‖	Elkhorn	.10	.15		.20	.50	.10				.05	.40	.05	.40								T.	T.	T.	.05			.10				2.10
Fairbury‖	Blue	1.30	.08	.45	.54		.15				.10	.03	T.	T.	.20								T.	.27	.28							3.40
Fairmont‖	do	.53	1.46	T.	.30	.50		.30				T.	.10	.05	.05									T.	.10	.40						3.79
Fort Robinson‖	Niobrara	.11		.50	.30		T.					.50					T.	T.		T.			T.					T.	T.		1.41
Franklin	Republican	.80	T.	.20	.60		.60				T.	T.													.30							2.50
Fremont	Platte	.60		.23	.30	.30	.20				T.	.10	.20	.15			T.					T.	T.	.10	.50			.10				2.78
Fullerton	Loup	.97		.18		.40	.27					T.	.10	.17											.11							2.20
Geneva	Blue	1.21	.23	.40	.30	.10	.20					T.	.10			T.	T.							T.	.50				T.			3.04
Gordon	Niobrara			.50										20								30										1.00
Gosper	Republican	.40		.07	.05		.05				.02	.02		.02										T.	.05		T.					0.68
Gothenburg	Platte	.30	T.	.35	.20	T.	.20			T.	T.		T.	.20	T.		T.						T.	T.	T.				T.			1.25
Grand Island‖	do	.27	.32		.08	.03						.02	T.		.03			T.			T.			T.			T.					0.75
Grant	Republican	.38		.20	.40	.20				.20	.40			T.			T.			T.			T.				T.					1.78
Greeley‖	Loup			.35	.46		.35				.15	.15	.25	.05		.02	T.						.03	.04	.55			.04	.06	T.		2.50
Halsey	do	.85	.05	.08	.06		.06					.41																				1.51
Hartington‖	Missouri	.58	.14	.05	.05	.20					T.	.20	.10	.05	T.							T.	T.	T.	.05			.05				1.47
Harvard‖	Blue	.48		.12	.33		.06			T.	T.	.03	T.										.01	T.	.21				T.			1.24
Hastings‖	do	.12	.08	T.	.20	.80	.10	.40								.03									.10	.45							2.28
Hayes Center	Republican	1.10		.60	.05		.40			T.	.20				.05		.05							.05	T.	.10			T.				2.60
Hay Springs	Niobrara	.05	.40	.10	T.		T.				.60	T.		.10			.10		T.	T.			T.		T.		T.					1.35
Hebron	Blue	.67		.36	.40		.30				T.	T.	T.	T.		T.							T.	T.	.40							2.13
Holdrege‖	Republican	.36		.10	.10	.10	.20	.20					.05	.02												.10							1.23
Hooper	Elkhorn	.50	T.	.21	.12	.16	.07				T.	.05	.13	.03	.10										.29				.05				1.71
Imperial	Republican	1.08	*	*	.31		.03			T.	.06	.04		.35	T.		T.				T.		T.	T.									1.87
Kearney	Platte	.10		.30	.10	.20	.20			T.	.05	T.	.05	.10	T.	T.								T.	.02								1.12
Kimball‖	South Platte		.40	.05			.05				.30				.10																	0.90
Kirkwood	Niobrara	.36		.10		.20					*	1.40																.20					2.26
Kowanda‖	North Platte	.31			.02										.18																	0.51
Lexington	Platte	.25		.40	.10		.23																									0.98
Lincoln	do	1.12	.08	.35	.22	.05	.12				.06	.03	.03	.04	.02	T.	T.					T.	T.	.02	.44			T.	.01			2.59
Loup	Loup	.05			.25		.30				T.	T.									T.			T.	.02							0.62
Loyal	Loup		T.		.30	*	.10			T.	.10				T.		T.							T.								0.50
Lynch	Niobrara																															
McCook	Republican	.50		.30	.23	.10																										1.13
Madison	Elkhorn	1.00		T.	.10	.30	.10				T.	.10	.15	.10	.15								T.	T.	.10			T.	.10			2.20

TABLE 2.—*Daily precipitation for December, 1909. District No. 6*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Nebraska—Cont'd.																																	
Marquette	Platte	.85	.09	.20	.40		.10				T.	.05	.05	.05									T.	T.	.20	T.				T.			1.99
Mason City	Loup																																
Minden	Blue	.18		.36	.40		.41				.05	.16		.03	.01		T.			T.				.03	.15			T.	T.			1.78
Nebraska City	Missouri		.45	.20		.50						.15	T.	.10									T.		.60			.20				2.20
Norfolk	Elkhorn	1.10	.21	.16	.27	T.	.08				T.	.13	T.	.20	T.		.02					T.	.03	T.	.08		T.	T.	.06				2.34
North Loup	Loup	.12		*	*	*	.95				.05	T.	.02	.10	T.		T.						T.		.05				T.				1.29
North Platte	Platte	.43	.02	.08	.18		.16			.03	.20	.12	.01	.14	T.						T.		T.	T.	T.				T.				1.37
Oakdale	Elkhorn	.96		.17	.32		.08				.04	.09	T.	.23	T.		.01					T.	T.	T.	.06		T.	T.	.04				2.00
Omaha	Missouri	.26	T.	.37	.39	.10	.19				.10	.06	.07	.08	.03		.02					T.	T.	.01	.57	.04		.02	.02				2.33
Ord	Loup	.27	.09					.34						.14																			0.84
Pawnee City	Great Nemaha	1.15	.20	.33	.42						*	.10	T.												.36								2.56
Plymouth	Blue	*	1.85		.45	.33	.08	T.				T.	.02	.02		T.										.47							3.22
Purdum	Loup	.80	.01	.20	.10		.10			T.	.20	.40		.20	.10		T.								.10				T.				2.21
Ravenna	do	.06		.30	.50		.20				.15		.10		T.										.10								1.41
Redcloud	Republican	.38	.05	.20	.40	.10	.30				T.	T.	T.	.04		T.	T.						T.	T.	.32								1.79
St. Libory	Loup	.64		.30	T.		.30							.10									T.	T.	.20								1.54
St. Paul	do	.45	.12	.14	.22		.07					.03		.08											.07								1.18
Santee	Missouri	.18	.20	.25	.10	.60	T.				.15	.60					T.					T.	T.	T.	.05		T.	T.	.10				2.23
Sargent‖	Loup																																
Schuyler‖	Platte	.15	1.20		.02								.15		.30									.05	.20	.50							2.57
Scottsbluff	North Platte	T.	.06	.22	.02		.06				.10	.09		.13	.02		T.			T.			T.		T.			T.					0.70
Seward‖	Blue	1.75	T.	.27	.32		.10				.10			.13	T.									.10									2.77
Sheridan	Loup	.25	.05	.05	.25								.20											T.	T.		.25						1.05
Sidney	North Platte	.12		.06	.03		.04				.05	.10		.12	.10		.08																0.70
Springview	Niobrara	.90		.40							.10	.60		T.	.20											.20							2.40
Stanton	Elkhorn		.30	.70	.40	.10						.10					T.								.30	T.	.10		.20				2.20
Stratton‖	Republican	.41	.10	.60	.20	T.	T.	T.	.10	T.	.20																						1.61
Superior‖	do					.75		.35																	.30								1.40
Tecumseh‖	Great Nemaha	.08	1.29	T.		.56		.04						.10											.20	.30							2.57
Tekamah	Missouri	.40	.10	.15	.10	.50	.10					T.	.10	.10	.20								.02		.55	.10			.05				2.47
Turlington	Little Nemaha	.63	.29	.31	.55		.25				.05	.05	.10		.20								T.	T.	1.00				.10				3.53
Valentine	Niobrara	.54	.01	.25	.01		T.			T.	.22	T.	T.	.05	.01	T.	.02	T.			T.		T.					T.	.02	.01			1.14
Wahoo	Platte	.81			.75		.30					.20	.30	.20											.40			.10					3.06
Wakefield	Elkhorn	.75		.10	.40		.05				T.	.06	.05	.02	.04		.02						T.	T.	.08				.05				1.62
Walthill	Missouri																																
Watertown	Platte						.12				.09		.58			.60									.06								1.45
Wauneta	Republican	.25		.40	.30	.20					.40			.30																			1.85
Weepingwater	Missouri	.49	.14	.49	.31	.42	.14	.14			.02	.07	.09	.03	.02		T.					T.	T.	T.	.51	.09			.07				3.03
Westpoint	Elkhorn	.65		.20	.20	.60	T.				T.	T.	T.	.20									T.	T.	T.	.30		T.	.10				2.25
Wisner	Elkhorn	.98				.20	.68				T.	.11	.06	.68									T.	T.		.12							1.63
York	Blue	1.53	.20	.15	.50		.20				.05	T.	T.	.10									T.	T.	.30	.10		T.					3.13
Iowa.																																	
Afton	Missouri	.74	.17	.38	.10			.10			.10			.20								T.			.60	.20			T.				2.59
Allerton	Charlton	.44	.09	.10	.50	.32	.02	.11			.01	.01	.05	.03								T.	T.		.48	.12		T.					2.28
Alta	Little Sioux	.03	.17		.05	.30					.03	.22		.08	.05		.04						.03		T.	.33	T.						1.33
Alta (near)	do	.19	T.	.10	T.	.30	.05				.15		.10		.10		.05					.05			.30								1.39
Alton	Floyd	.74	.06	.05	.05	.40					.20	.10	.10	.05	.05	.05	T.					T.	T.		.05		T.	T.					1.90
Atlantic	Nishnabotna	.27	.13	.25	.32	T.	T.	T.			.10	T.	.09	.05	.08		T.					T.	T.		.65			T.	T.				1.94
Audubon	do	.16	.08	.20	.15						.50	.30	.05			.02			.20						.30			.05					2.01
Bedford	Missouri	.45	.10	.22	.55	T.	T.	.10			.18	T.	.09		.10							T.	T.		.45			T.	.06				2.30
Charlton	Charlton	.35	.10	.15	.45	T.	T.				.10	.10												T.	1.00								2.45
Clarinda‖	Nodaway	.15	.30	.02	.26	.36		.06				.09	.03	.05	.08	T.	T.						T.		.17	.27			.04				1.88
Corning	do	.45	.17		.98	.20							T.									T.			.60								2.38
Corydon	Charlton	.27	.19	.10	.61	.08	.01	.13			.02	.07	T.		.05							T.	.01		.52	.08		T.					2.14
Creston‖	Missouri	.35	.40		.53	.13		T.				T.	T.	T.	T.										.15		.40						1.96
Cumberland	Nodaway	.42		.08	.30										.20										.80								1.80
Denison	Missouri	.22	.03	.18	.07	.07	.10					.03	.06		.21							.15	.08		.50	.20		T.					1.90
Elliott	Nishnabotna	.30	.05	.15	.40						.10	T.			.10		T.					T.			.50	.20			T.				1.80
Greenfield	Nodaway																																
Hancock	Nishnabotna	.30	.10	.15	.26		T.				T.	T.	T.		.25		T.				T.	.10			.50				T.				1.66
Harlan	do	.27	.05	.30	.20	.05	.05	.01			.10	.10	.05	.02	.13		.01					T.	T.		.46	T.		T.	.01				1.81
Hopeville	Missouri	.63		.26	.34	.04	.04	.04			.04	.04	.01	.01	.08		T.					T.	T.		.44	.10			T.	T.			2.07
Inwood	Big Sioux	.53	.05	.13	.12	.15		T.			.15	.13	.06		.16	.03	.06					.02	.03	.03	.03		T.	.03	T.				1.65
Lamoni	Missouri	.43	.88		.15	.05	.04	.17			.02	.04	T.	T.	.05							T.	T.		.70	.07	T.						2.60
Larrabee	Little Sioux	.25		.07	.20	.40	T.				.16	.05	.17		.08	.05	.06	.03				.03	.10		.11	.07		.01					1.84
Le Mars	Floyd	.31	.03	.12	.06	.15	T.			T.	.08	T.	.10	T.	.06		T.					T.	.01	.01	.02	.04	T.						1.04
Lenox	Missouri	.47	.15	.25	.10	.05	.03				.05	.04			.03										.50				.05				1.72
Leon	do	.80	T.	.20	.75	.25	.10	.05			.19	.10	T.	T.	.02							T.	.04		.60	.15		.02					3.27
Little Sioux	Little Sioux	.32		.15	.10	.30	.10						.05		.20										.40								1.62
Logan	Missouri	.32		.28	.14	.26	.06				.04	.05		.12	.15							T.	T.		.41	.10							1.93
Mt. Ayr	do	.85	.02	.30	.40	T.	.10	.10			.05	.03	.05		.05								T.		.50	.18							2.63
Odebolt	do	.25		.15	T.	.31	.05				.05		.03									T.			.37								1.21
Onawa	do	.30	.12	.15	.10	.30	.10				T.		.03	.05	.15		T.					.02	T.		.15	.25			.05				1.77
Pacific Junction	do	.38	.07	.34	.42		.10				.06	.09	.10	T.	.09		T.					T.	T.	T.	.60			T.	.12				2.37
Rock Rapids	Big Sioux																																
Sheldon	Floyd	.25	.10	.20	.25	.25					.50	.40	.10	.10	.10	.20	.20					.10	.10	.10	.20	T.	.25	.05	.05				3.40
Sibley‖	Big Sioux	.07	.33	.04	.10	.50	T.				T.	.20	T.	T.	.05	T.	.05	.05				T.			T.	T.							1.39
Sioux Center	Floyd	.05		.20	.20	.10					.20	.05	T.		T.		.10					T.	T.	T.	T.		T.						0.90
Sioux City	Missouri	.31	.02	.10	.24	.04	.01	T.			.05	.04	.02	.07	.03		.01					T.	T.	.01	.08		T.	T.	.01		T.		1.04
Thurman	do	T.	.64	.28	.23	.05	.03	T.			.15		.12	T.	.05		T.					T.	T.	T.	.40	.02		T.	.10				2.07
Washta	Little Sioux	.30	.05	.10	.20	.05	T.				.10	T.	.05		T.		T.					T.	T.		.20	T.		T.					1.05
Woodburn	Charlton	.23		.16	.40	T.	.10	.20			.10	.25	.05		.05	T.	T.					.05	T.		.35	.15		T.					2.09
Kansas.																																	
Abilene‖	Smoky Hill	.30		.04	.18	.16		.24				T.	T.											.06	.44								1.42
Agricultural College	Kansas	.30	.15	.25	.50		.21				.15	T.	T.	T.									T.	T.	.63								2.19
Alton	Solomon	.35		.23	.40	.10	.30	.05			T.			T.		T.	T.							T.	.40				T.				1.83
Atchison	Missouri	.50		.10	.50		.15				T.		T.	T.						T.			T.		.40				T.				1.65
Baker‖	do			.25	.50	.50						T.	T.	T.										*	*	.80							2.05
Beloit‖	Solomon																																
Blakeman	Republican	.54		.39	.04		.21				.06	.04		.03			.03								.13								1.47
Blue Rapids‖	Blue																																
Centralia	do	1.50	.10	.25	.35	.03	.35				T.	*	.05	T.									T.	T.	.52								3.15
Chapman	Smoky Hill	.30		.20	.46		.35				T.	T.	T.										T.	T.	.75								2.06
Clay Center	Republican	.30	.10	.15	.20		.30																	T.	.40								1.45
Colby	do			.36	.08					T.	.04	T.		T.			T.		T.	T.	T.	T.	T.	T.	.07		.01						0.56
Concordia	do	.10		.19	.48		.15			T.	T.	T.	.01	.02									.02	T.	.18				T.				1.15
Densmore	Solomon	T.	T.	*	*	*	.38		T.			T.		T.	.05									T.	.05			T.					0.48
Dresden‖	Republican	T.		.73	.27	T.	.70			T.	.08	T.	T.	T.	T.	T.	T.	T.					T.		.28				T.				2.06
Ellsworth	Smoky Hill	.08		.12	.12	.05	.12					T.					T.								.10								0.59
Enterprise	do	.23		.13	.04		.13																		.45								0.98
Eskridge	Kansas	.40		.07	.75		.16	.03			.06		T.										T.	T.	.45								1.92
Farnsworth	Smoky Hill	.02		.26	.48		.03				T.				T.										.18			.03					1.00
Ft. Scott‖	Marmaton	.70			1.06		.20	.35				T.	T.		T.	T.									.20								2.51
Frankfort	Blue	1.20	.35	.35	.20		.30	.10				.02	T.	.05											.30								2.87

TABLE 2.—*Daily precipitation for December, 1909. District No. 6*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Kansas—Cont'd.																																	
Garnett	Marais des Cygnes																								.10								2.10
Gove	Smoky Hill	*	1.00			.90	.10																										
Hanover	Blue	.87	.40	.16	.60		.20				.02	.01	.01	T.									T.		.22								2.49
Harrison	Republican	.43	.01	.30	.25	.05	.22	T.			T.	T.	T.	.05		T.	T.							T.	.33								1.64
Hays‖	Smoky Hill			.20	.28		.10										T.							T.	.42								1.00
Hill City	Solomon			.20	.35	.10	.20				.15													.05					T.				1.05
Horton	Kansas	.81		.20	.49	T.	.05	.02			.06	T.	.02	T.						T.			T.	T.	*	.60	T.		T.				2.25
Hoxie	Solomon			.17	.10		.10			T.	T.							.05					T.	T.	.05								0.47
Jewell	Republican	.54	.03	.12	.50		.25				.25												T.		.50								2.19
Lawrence	Kansas	.55	.03	T.	.98	.20	.20					.10	T.											.28	.05				T.				2.39
Lebanon	Solomon	.35		.18	.35	.05					T.		T.												.30				T.				1.23
Lindsborg‖	Smoky Hill																																
Manhattan‖	Kansas	.51	.07	T.	.19	.45	*	.30				.10	T.	T.	T.								*	.01	.26	.38							2.27
Mankato	Republican	.80	.10	.20	.20	.05	.20																		.30								1.85
Minneapolis	Solomon	.05		.19	.38		.27				T.						T.								.28								1.17
Moran	Marmaton	.60			.97	T.	.10	.20			T.	.03				T.									.20	.10							2.20
Norton	Republican	.07		.43	.11	T.	.60			T.	T.	T.		T.	T.		T.								.10				T.				1.31
Oberlin	do	.03	T.	.43	.18	.03	.08			T.	.03	.02	T.	T.	.01	.02								T.	.14								0.97
Oketo	Blue	.95	.17	.14	.65		.35				.01	T.	.01	T.											.42								2.70
Olathe	Kansas	.38			1.07		.38				T.	.05	T.			T.						T.		.35				T.				2.23
Osage City‖	Marais des Cygnes	.55	T.	.04	.88		.16				T.	T.	T.												.34	T.							1.97
Ottawa	do	.68	T.		.98		.25																T.		.43								2.43
Paola	do																																
Phillipsburg	Solomon	.35		.18	.40		.40				T.			T.										T.	.30				T.				1.63
Pleasanton	Marais des Cygnes	.65			.91	.33	.20	.08																	.35								2.62
Republic	Republican																																
Russell	Smoky Hill			.54	.23		.22																	*	.10								1.09
St. Francis	Republican	.80		.70	.08		.02				.12			.01									T.	T.	.02			T.					1.75
Salina	Smoky Hill	.11		.14	.11		.20				.01	T.					.01							T.	.32								0.90
Scott	do	.06		.28	.27	.09	.15	T.			T.	T.		T.	T.										.22			T.					1.07
Topeka	Kansas	.53		.09	.56		.22	.01			.05		T.	T.									T.	.01	.70								2.17
Valley Falls	do	.90		.10	.67	.02	.08	.02			.04	.02	.01	T.									T.		.50								2.36
Vinland	do	.58			.58		.09																		.35								1.60
Wakeeney	Smoky Hill			.33	.16		.12																	T.	.19								0.80
Wallace	do	.13		.02	.04		.04			T.	T.	T.			T.		T.					T.			.02			.04					0.29
Wamego	Kansas	.60		.25	.60		.25				.15	T.	T.	T.									T.	T.	.75								2.60
Missouri.																																	
Albany‖	Grand	.40				.95		.10							T.										.20	.45							2.10
Amoret	Osage	.01			.12		.40																		.45								0.98
Appleton City	do					1.00																			.40								1.40
Arlington‖	Gasconade					1.28																			.90	T.							2.18
Arthur	Osage	.85			.87	.22	36	.20																	.20								2.64
Avalon	Grand	1.10	.10	.02	.81	.60		.40																	.30	.30							3.63
Bagnell‖	Osage																																
Bethany	Grand	1.24		.10	1.28	.10	.09																		.66	.20			T.				3.67
Bolivar	Osage	.52			.10	1.25	.10	.20				.09													.47	.10							2.83
Boonville‖	Missouri	.70	.18			1.10		T.				.08	.24		T.										.22	.08	T.	T.	.18	T.			2.78
Brunswick‖	Grand	1.20	.13	.03		1.57	.24					.07			.05		T.								.22	.23		T.	T.		.06		3.80
Clinton	Osage	1.37	.04		.93	.20	.48	.30																	.35								3.67
Columbia	Missouri	.84	.01		1.47	.16	.23	.10			.05	.20		T.	.01	T.							T.		.43	.05		T.	.05				3.60
Conception	do	.61		.14		.06	.10						.10												.50				.05				1.56
Darksville	Chariton				.85	.68	.30					.40													.30	.20							2.73
El Dorado Springs	Osage	1.30			.30	T.	.30	.50				.32													.50	.10							3.32
Fairport	Grand	.74		.15	.30	T.	.15				T.	T.	.20										T.		.50	T.		T.					2.04
Fayette	Missouri	.86	.08		.50	.45		.25				.12			T.										.30	.20			.20				2.96
Fulton	do	.71			.13	1.04					T.	.36	.08												.27	.17			.07				2.83
Gallatin	Grand	1.20			.80	.20	T.	.25			.03	.02	.01	T.											.20	.20			1.20				4.11
Glasgow‖	Missouri	.68	.40			1.54		.36				.08			.01									.01	.14	.46			.04	.01			3.73
Grant City	do	.57	T.	.23	.10	T.	T.	.10			.10	.10	T.	T.	.10	T.					T.		T.		.50	.10			.10				2.00
Harrisonville‖	Osage	.67	.08			1.45		.70				.02													.30	.10				T.			3.32
Haselhurst	Grand	1.09	.05	T.	1.22	.05		.25			.02	.05	T.		.02	T.									.50			.10					3.35
Hermann‖	Missouri		.22			1.38	T.	.24	T.			.24	.12	.12	.01	T.	T.							T.	.06	.30	.01		.01	.06			2.77
Houston	Gasconade	.55			.15	.60		.22			T.	.18	.35	.18											.28	T.							2.51
Huntsville	Chariton	.90		.16	1.00	.25																											2.25
Jefferson City‖	Missouri	.55	.30			1.20	T.	.08					.30												.30	.20			.03	.01			2.97
Kansas City	do	.23			1.18	.03	.39	.01			.06	.01	.01			T.							T.	.04	.51				T.				2.47
Kiddder‖	Grand	.72	.25	.03	.04	.88		.32				.10		.01	.02										T.	.30			T.	.06			2.73
Lamonte	Missouri	.77			.84	.33	.10	.05					T.	T.	T.								T.		.40	.05			T.				2.54
Lebanon	Osage	.52		.15		1.10			.10		.22	T.													.40								2.49
Lexington‖	Missouri	1.08	.22			1.58		.35				.12			T.										.10	.27			.05				3.77
Liberty	do					T.	.35				T.	T.	T.	T.	T.	T.							T.		*	.45			T.				0.80
Lockwood	Osage	1.07			.48	.89	.26	.10				.32													.47								3.59
Marshall	Missouri	.90	T.		.95	.35	.05	.20			T.	.10	T.	T.	T.										.30	.10		T.					2.95
Marshfield	Osage					.90	T.	.30															T.		T.								1.20
Maryville‖	Missouri	.28	.24	T.	.25	.53		.30				.20	.20	.10	.05										.30	.27			.10				2.82
Mt. Vernon	Osage	.08			1.40	.90	.20	.30				.05													.04	T.							2.97
Nevada	do	.85			.88	.36	.20	.20																	.20	.20							2.89
New Palestine	Missouri	.68			.98		.10						T.			T.								T.	.45	.05			.02				2.28
Oregon	do		.35	T.	*	.76	.17				T.		.07	T.						T.			T.	*	*	.60			.10				2.05
Osceola‖	Osage	.99				.97	.30																			.60							2.86
Parkville	Missouri																																
Rolla	Gasconade	.40			.10	.70		.26				.26	.20	.18									T.		.43				T.				2.53
St. Charles	Missouri	T.			.33	.23		.29			.10	T.		.45									T.		.70	T.							2.10
St. Joseph	do	.28	.04	.02	.06	.60		.08				.10														.26				.02			1.46
St. Louis	Mississippi	.09	T.	.01	.01	.16	.20	.10			.36	.14	.07	.21	T.	T.							T.	T.	.39	.14		T.	.01				1.89
Sublett	Chariton	2.50	T.	T.	2.75	T.	T.	.20			T.	.02													.40	.30							6.17
Trenton	Grand	1.10	.07	T.	.70	.23	.08	.15				.10			.07										.31	.28			T.				3.09
Unionville‖	Chariton		.40	T.	.10	1.55	.15	.04				.60		T.	.08	T.							T.		.16	.80		T.					3.88
Versailles	Osage																																
Warrensburg	Missouri	.86	.10		.99	.31	*	.38																	.35				T.				2.99
Warrenton‖	do	T.	.17	T.		.60		.42				.18	.21	.20	.03									T.	.08	.35	T.			.04			2.28
Warsaw	Osage	.58	.03		.52	.75	.10	.40			T.	.28				T.									.60				T.				3.26
Wheatland	do	.60		.20	.88		.03	.03				.05																					1.79

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 6, Missouri Valley.*

	Wyoming.																Montana.											
	Basin.		Cheyenne.		Fort Laramie.‡‡		Lander.		Newcastle.		Pathfinder.		Sheridan.		Yellowstone Park.		Billings.‡‡		Dillon.		Havre.		Helena.		Lewiston.		Malta.	
Date.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	38	30	40	25	45	29	.....	.....	40	28	31	22	37	27	31	24	46	26	47	26	39	22	35	21	45	20	34	17
2	36	24	30	21	30	20	.....	.....	28	18	25	6	33	4	24	3	38	26	34	19	25	− 3	28	1	26	− 3	27	5
3	20	4	21	− 3	19	8	.....	.....	22	− 5	10	0	4	− 2	3	−11	28	3	26	− 2	1	− 4	2	− 2	0	− 7	7	− 1
4	8	− 4	6	− 5	9	−10	.....	.....	10	− 5	2	− 9	1	−21	1	−13	11	−25	10	−15	3	− 7	3	− 9	− 4	−16	4	− 7
5	2	−25	20	− 2	− 5	−24	.....	.....	14	−12	2	− 6	1	−27	13	−10	− 1	−30	11	−19	1	−11	2	−11	0	−21	− 2	−16
6	0	−17	15	−13	4	−18	.....	.....	9	− 9	6	− 8	− 3	−23	1	−10	−11	−24	6	−10	− 4	−20	− 2	−14	− 3	−20	− 5	−21
7	− 3	−24	18	−12	− 6	−17	.....	.....	4	−18	28	−13	− 3	−25	21	1	− 4	−24	15	−16	− 8	−23	− 2	−14	− 5	−27	− 6	−15
8	4	−14	38	4	11	−14	.....	.....	20	−10	32	6	3	−10	30	18	− 6	−23	30	6	− 1	−20	10	− 4	14	−17	− 3	−23
9	7	− 6	41	17	18	− 5	.....	.....	19	0	36	27	14	− 4	36	29	− 1	−12	38	14	11	− 2	35	9	25	1	10	− 7
10	29	0	39	21	28	0	.....	.....	24	10	33	23	28	3	29	9	10	3	42	20	13	−10	35	26	30	12	13	0
11	29	3	21	16	27	6	.....	.....	27	5	41	10	31	− 5	21	4	21	5	40	1	9	−14	27	17	36	2	3	−15
12	23	− 2	41	15	39	0	.....	.....	35	3	27	14	43	3	26	17	28	5	41	14	42	9	42	26	47	33	27	− 7
13	32	14	40	26	39	12	.....	.....	35	23	35	20	41	19	30	15	39	16	40	18	39	17	38	27	44	20	38	12
14	33	22	27	12	37	− 6	.....	.....	23	9	32	17	28	12	29	9	39	19	41	19	34	17	36	21	32	7	28	6
15	30	5	30	16	27	−15	.....	.....	34	5	30	12	41	21	28	10	33	20	42	18	37	30	35	23	34	5	41	20
16	32	12	26	− 5	28	−24	.....	.....	30	5	28	10	33	4	20	4	38	26	36	21	32	0	34	19	28	9	38	5
17	26	− 6	5	−11	10	− 3	.....	.....	9	− 3	13	− 9	8	−22	6	−13	29	− 6	38	19	6	− 8	19	11	19	−12	6	−15
18	8	−24	16	− 7	16	−15	.....	.....	10	−16	7	−15	26	−22	15	2	9	0	35	18	27	5	18	7	29	5	20	−12
19	2	− 7	20	3	26	− 3	.....	.....	20	− 2	18	5	26	12	15	− 1	18	8	34	18	27	13	25	13	20	−10	24	0
20	8	−10	14	− 3	20	− 6	.....	.....	10	− 5	14	−16	14	−15	9	− 5	26	8	20	− 4	13	5	19	5	31	7	5	−23
21	10	−11	12	− 2	19	− 8	.....	.....	12	−11	7	−11	− 4	−20	7	−16	12	2	18	− 9	6	− 1	6	− 4	19	−16	0	−10
22	10	−18	33	2	10	− 2	.....	.....	20	− 5	21	−10	7	−20	17	− 3	45	−16	16	− 8	2	−12	1	−10	21	−11	8	−20
23	− 4	−26	28	4	22	− 4	.....	.....	21	− 2	20	−10	17	−11	20	− 5	16	−11	10	−10	18	−12	1	−11	25	− 3	7	−18
24	− 6	−27	18	3	20	0	.....	.....	20	− 3	13	−11	15	−16	16	− 6	14	− 6	24	− 5	19	− 3	7	− 6	22	− 4	15	−19
25	− 6	−27	38	16	40	− 9	.....	.....	28	3	20	− 2	14	−12	25	1	14	− 4	36	12	16	4	30	0	33	0	9	−12
26	18	− 8	38	20	34	− 9	.....	.....	30	13	32	− 3	28	10	24	17	32	.....	40	−18	28	5	32	18	33	18	20	6
27	22	10	34	21	35	19	.....	.....	28	10	27	9	40	26	25	11	34	20	38	0	39	28	33	25	33	22	35	14
28	22	11	35	23	35	22	.....	.....	30	18	25	10	34	9	24	5	36	21	40	8	32	18	37	10	43	14	33	12
29	23	−17	43	21	42	2	.....	.....	32	5	29	9	35	3	27	8	31	16	40	11	42	30	31	17	41	16	36	0
30	11	− 7	54	34	49	12	.....	.....	43	15	37	14	52	17	32	15	35	27	42	14	48	35	41	19	46	18	46	30
31	40	− 1	56	40	52	35	.....	.....	52	21	41	30	54	22	36	17	39	26	45	19	43	1	42	4	44	2	41	15
Mns	16.3	−4.7	28.9	9.6	25.2	−0.9	.....	.....	23.8	2.7	23.3	3.9	22.5	−2.0	20.7	4.1	22.5	3.2ᵃ	31.5	6.9	20.6	2.9	22.6	7.5	26.1	1.4	18.0	−3.2

	Montana.				North Dakota.										South Dakota.													
	Miles City.		Poplar.		Berthold Agency.		Bismarck.		Dickinson.		Jamestown.		Williston.		Aberdeen.‡‡		Chamberlain.		Huron.		Kadoka.		Lemmon.		Pierre.		Rapid City.	
Date.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	34	28	40	18	46	30	38	25	43	28	27	25	.....	.....	39	33	40	.....	41	32	46	32	44	30	42	32	42	27
2	28	11	29	20	34	14	25	17	30	16	26	13	.....	.....	24	22	.....	20	32	20	36	26	31	18	32	22	27	22
3	11	4	15	− 7	17	5	20	4	22	4	15	− 1	.....	.....	12	10	28	4	20	8	29	8	25	15	22	9	22	4
4	6	− 1	14	−10	7	− 9	5	− 5	7	− 6	5	− 8	.....	.....	5	− 3	.....	− 1	8	0	9	− 3	15	− 9	10	1	6	− 5
5	3	− 8	8	−12	2	−14	0	− 8	11	−14	− 5	− 8	.....	.....	0	− 4	8	− 2	4	− 3	6	− 9	5	− 9	8	− 2	6	− 9
6	− 2	−11	− 2	−22	1	− 9	1	−10	0	−13	− 3	−13	.....	.....	0	− 8	5	− 2	0	− 4	1	− 5	− 1	−11	2	− 1	8	− 9
7	− 2	− 9	3	−12	− 1	− 8	− 3	−10	− 3	−11	− 4	−12	.....	.....	0	− 9	3	− 7	0	− 6	2	− 7	− 3	−10	3	− 4	4	−16
8	6	−14	− 1	−23	− 2	−20	− 3	−14	0	−19	− 4	−14	.....	.....	− 1	−10	1	−10	− 3	−10	1	−12	0	−17	1	− 7	3	−15
9	17	2	12	−14	− 2	−20	− 4	−18	2	−15	− 5	−26	.....	.....	9	−14	1	−15	8	− 7	7	−11	− 2	−14	6	−10	10	− 3
10	16	8	12	− 6	8	−11	6	− 4	7	− 4	2	−20	.....	.....	15	−15	14	.....	15	8	12	6	8	− 5	14	6	9	5
11	24	2	14	−11	15	4	12	2	14	2	11	− 1	.....	.....	20	8	.....	.....	21	12	11	0	8	− 2	14	8	13	− 2
12	36	3	34	− 4	21	−12	18	6	30	−12	17	− 8	.....	.....	23	10	.....	5	22	14	12	3	12	− 4	18	9	23	− 7
13	42	15	36	4	30	17	28	18	35	16	19	15	.....	.....	.....	15	25	15	24	19	36	10	34	12	30	18	42	16
14	30	15	25	4	24	4	18	9	18	6	19	2	.....	.....	22	.....	26	14	24	6	20	5	24	8	23	13	29	12
15	42	25	35	15	32	5	34	7	32	11	20	− 4	.....	.....	33	− 5	.....	10	31	7	34	16	32	13	35	17	41	25
16	30	10	37	−10	36	− 4	30	− 2	34	− 4	30	0	.....	.....	9	1	38	2	34	1	36	4	34	− 2	39	2	38	5
17	12	− 4	10	− 8	2	− 6	3	− 5	2	− 5	2	− 5	.....	.....	5	− 4	.....	− 5	4	− 8	16	− 4	2	− 5	8	0	11	− 8
18	15	− 8	3	−25	2	−20	2	−20	9	−19	− 4	−16	.....	.....	0	−15	.....	−11	− 1	−12	4	−10	5	−11	6	− 6	11	− 8
19	20	12	7	− 8	− 1	−20	2	−21	6	−13	2	−10	.....	.....	4	−15	6	−18	− 6	−21	12	−12	3	−14	5	−12	22	0
20	4	− 5	0	−24	8	.....	9	−11	3	−19	8	− 6	.....	.....	13	− 9	6	−11	5	−12	7	− 8	4	−16	8	−12	13	− 5
21	6	− 9	10	− 5	13	.....	15	9	11	2	14	− 8	.....	.....	22	1	17	− 5	16	5	10	− 5	11	0	16	4	15	− 5
22	2	−17	19	6	.....	13	18	11	12	6	21	9	.....	.....	12	12	.....	5	17	12	13	3	11	8	15	9	19	− 4
23	18	− 4	12	−14	18	3	14	− 6	12	− 4	22	9	.....	.....	18	6	.....	7	22	2	13	− 5	12	− 1	10	− 1	23	− 3
24	20	− 5	10	−15	11	−22	7	−12	13	− 4	20	−10	.....	.....	12	− 5	.....	0	12	3	20	6	15	− 4	30	3	31	11
25	20	− 4	12	−17	20	−14	20	− 8	16	− 2	8	−14	.....	.....	20	−12	.....	2	13	− 7	27	8	16	− 1	26	7	31	12
26	28	16	23	−10	20	7	20	8	19	8	16	− 4	.....	.....	21	1	.....	.....	20	2	29	10	20	1	26	12	33	17
27	40	16	23	7	21	8	19	10	19	9	15	0	.....	.....	22	3	.....	.....	21	10	32	13	20	10	26	18	39	21
28	36	12	27	7	16	3	10	−10	18	6	8	−12	.....	.....	0	− 1	.....	0	13	−12	35	12	19	5	18	3	32	5
29	41	5	27	7	30	−14	15	−19	32	− 2	− 1	−32	.....	.....	15	−28	8	−15	4	−22	28	6	20	1	12	− 4	51	3
30	48	34	43	17	43	14	41	14	37	26	40	−10	.....	.....	40	−20	40	13	40	4	40	28	38	19	44	12	53	31
31	44	12	43	19	43	16	40	21	47	27	35	22	.....	.....	28	10	45	15	31	17	43	30	37	22	35	20	57	32
Mns	21.8	4.2	18.7	−4.3	7.1ᵇ	−2.0ᵇ	14.8	−0.7	17.4	0.0	12.1	−4.7	.....	.....	14.7ᵃ	−1.5ᵃ	18.3ᵃ	0.4ᵃ	15.9	1.9	20.2	4.4	16.1	0.9	18.5	5.4	24.6	4.7

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 6*—Continued.

Date	South Dakota.						Colorado.				Nebraska.															
	Sioux Falls.		Watertown.		Yankton.		Denver.		Wray.		Alma.		Bridgeport.		Grand Island.§§		Hay Springs.		Hebron.		Lincoln.		North Platte.		Oakdale.		Omaha.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	40	38	40	37	46	38	45	32	43	31	51	34	.....	.....	40	37	42	30	49	46	49	36	44	34	45	31	47	43
2...	58	32	39	30	39	26	36	27	34	24	45	32	45	25	40	36	32	22	40	35	38	34	41	30	31	24	43	34
3...	45	23	32	10	26	10	27	5	31	16	41	29	30	10	30	24	22	4	35	23	34	17	30	10	24	7	34	19
4...	35	5	12	1	10	2	7	− 5	24	6	29	9	26	0	10	8	12	− 7	23	10	17	7	13	5	7	4	19	9
5...	20	− 2	3	− 4	7	2	15	− 3	20	−19	15	− 3	15	−19	10	4	12	−18	14	6	14	4	14	−11	7	0	14	6
6...	15	− 4	− 2	− 7	5	− 1	8	− 6	10	− 1	11	− 1	8	− 6	8	6	12	− 5	12	0	11	− 1	11	− 7	5	− 4	11	2
7...	0	− 7	0	− 8	2	− 5	11	− 7	14	− 3	6	−15	5	−13	4	− 6	2	−10	7	− 7	5	− 8	5	−14	2	−10	5	− 3
8...	0	−10	0	−10	0	− 9	33	0	20	− 9	11	−18	13	−12	7	−12	10	−14	7	− 9	4	− 8	10	−15	0	−12	3	− 5
9...	13	−10	2	−11	5	−12	36	15	17	− 5	12	−12	17	0	12	− 9	15	− 4	11	−10	8	−12	11	− 5	4	−17	8	− 8
10...	15	10	10	− 7	15	5	39	8	29	7	17	10	26	8	24	8	18	6	20	7	20	8	13	8	15	4	19	8
11...	26	10	21	9	23	15	32	13	29	11	17	− 3	20	7	17	12	8	4	21	17	23	19	13	4	17	14	22	19
12...	25	19	22	18	26	20	45	13	28	− 6	23	5	18	−15	21	13	15	−15	23	14	27	19	11	− 1	20	15	27	22
13...	27	19	24	19	22	19	46	24	42	11	45	6	38	6	27	17	36	10	27	16	24	19	41	2	24	16	24	22
14...	28	19	22	9	25	12	29	21	36	19	28	14	34	15	21	13	33	4	24	18	25	10	28	12	20	14	25	19
15...	25	0	21	0	27	10	42	17	31	12	48	14	35	12	26	9	32	14	32	6	28	10	37	15	25	8	24	13
16...	30	0	29	0	37	− 1	28	10	30	17	35	18	30	12	32	16	32	10	37	18	36	2	34	5	36	− 4	36	4
17...	20	−10	4	− 7	4	− 6	13	−13	19	− 6	21	0	13	0	9	−10	22	− 8	18	0	8	− 3	10	− 3	4	−10	6	− 2
18...	12	−12	1	−15	5	−13	25	−12	18	−10	21	−10	16	−16	14	−11	10	−21	14	− 6	10	− 6	13	− 8	5	−14	8	− 6
19...	15	−17	6	−13	4	−19	28	− 2	26	− 4	16	−12	27	− 3	10	−14	22	−13	14	− 8	8	−12	15	− 9	6	−18	8	− 6
20...	6	−10	10	− 7	5	−10	19	− 1	26	− 1	26	−10	27	3	15	− 5	14	5	17	− 6	15	− 3	21	3	9	−12	15	1
21...	19	− 4	15	7	16	3	14	3	27	1	25	− 1	20	− 4	30	− 3	12	−15	22	2	20	2	20	0	15	− 1	17	2
22...	17	2	17	10	17	11	25	− 5	21	− 4	17	− 6	17	− 5	20	7	12	−18	16	2	18	14	22	− 4	17	4	18	15
23...	20	5	21	11	23	11	29	4	26	5	26	9	20	0	35	16	25	− 7	24	12	26	15	27	16	23	2	26	16
24...	27	8	20	4	23	9	30	12	21	15	26	21	23	3	21	21	15	7	29	23	28	19	27	9	21	14	28	18
25...	22	7	7	− 8	14	− 3	43	10	34	9	31	12	30	3	25	8	29	9	23	12	20	11	29	9	20	3	18	7
26...	20	− 4	20	− 3	26	10	48	22	37	12	38	− 4	35	3	34	9	30	15	29	0	32	8	37	5	32	3	29	10
27...	25	−10	20	1	26	16	45	17	35	20	40	10	35	22	34	10	32	15	35	14	32	14	35	16	29	12	30	19
28...	13	−16	14	−11	18	− 8	45	19	34	15	28	20	33	13	17	10	32	10	20	16	22	1	35	13	12	0	20	1
29...	2	−20	1	−25	12	−16	54	15	41	8	24	1	38	3	40	11	39	− 1	16	− 2	9	− 7	33	3	14	−15	4	− 9
30...	10	− 5	35	0	44	12	56	31	59	18	44	10	44	26	45	28	42	25	39	6	45	9	39	24	40	14	41	3
31...	15	0	35	17	45	23	63	33	58	22	44	14	55	23	48	23	47	24	42	20	42	25	51	22	44	20	42	24
Mns	20.8	1.8	16.2	1.5	19.3	4.9	32.8	9.6	29.4	6.8	27.8	5.6	26.4ª	3.4ª	23.4	8.9	23.1	1.9	23.9	8.9	22.5	7.8	24.8	5.5	18.5	2.9	21.6	9.6

Date.	Valentine, Nebr.		Iowa.						Kansas.										Missouri.							
			Clarinda.§§		Sibley.§§		Sioux City.		Colby.		Concordia.		Salina.		Topeka.		Wakeeney.		Columbia.		Kansas City.		St. Louis.		Unionville.§§	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	43	30	51	34	43	39	45	42	46	26	50	40	51	36	53	44	48	27	56	45	55	46	52	43	50	41
2	31	23	40	36	43	39	43	30	35	28	42	37	54	39	46	41	47	29	52	39	47	42	47	47	47	40
3	23	2	46	33	33	22	30	14	33	18	40	19	44	31	43	31	30	22	55	40	45	39	55	42	45	36
4	6	0	22	22	13	8	14	8	18	8	19	10	32	15	31	15	22	8	57	43	41	22	62	51	40	34
5	7	− 8	16	6	8	2	10	3	11	− 8	15	4	18	8	22	11	18	− 3	44	17	22	11	62	24	15	14
6	2	− 5	16	3	5	− 2	8	− 1	14	1	14	3	23	8	21	8	18	7	28	18	20	15	34	22	20	7
7	2	−12	7	− 3	3	− 6	4	− 4	19	−14	6	− 5	10	− 4	10	0	9	− 9	22	0	15	3	26	8	5	0
8	1	−16	6	− 6	2	−10	1	− 7	14	− 9	8	− 6	8	− 6	10	− 1	11	− 3	9	− 2	9	0	13	3	4	− 7
9	9	−13	13	−10	9	−10	7	−10	18	− 4	13	− 5	15	− 1	14	− 1	16	− 3	12	− 5	14	0	17	2	12	− 9
10	11	5	27	−10	17	− 9	17	6	18	6	30	11	37	9	33	9	17	9	32	6	33	9	32	11	30	− 5
11	9	5	29	13	25	− 2	25	17	15	0	21	10	20	9	34	17	15	4	36	28	35	24	38	32	31	12
12	16	5	28	23	25	17	26	23	14	0	24	10	28	10	28	16	17	3	28	23	29	20	37	27	28	25
13	37	11	26	21	25	20	23	21	39	4	40	18	38	22	37	21	43	1	29	26	32	24	31	26	26	22
14	21	11	26	20	24	9	24	16	37	3	36	13	26	21	37	18	39	19	32	25	35	20	33	29	25	20
15	33	15	30	11	30	− 3	21	8	35	9	35	13	36	18	32	16	39	17	27	18	29	16	29	23	20	18
16	36	− 1	38	9	31	− 2	36	− 1	34	0	39	9	40	25	40	11	36	24	38	12	41	11	44	21	40	12
17	6	− 6	8	− 4	5	− 7	4	− 5	28	2	12	2	25	6	14	6	32	6	15	7	13	6	29	10	5	0
18	5	−13	10	− 8	4	−16	4	−12	18	− 5	17	− 1	16	3	19	4	25	0	14	3	16	4	16	6	12	− 5
19	15	−15	17	−10	6	−17	2	−14	21	− 2	16	− 3	25	5	29	5	22	2	22	3	25	6	21	11	15	− 4
20	9	− 3	17	−11	8	−16	7	− 5	24	4	22	− 1	24	0	25	5	27	2	25	8	23	7	28	16	20	− 1
21	13	− 3	17	− 1	17	− 8	16	3	22	1	23	5	26	5	28	11	25	3	26	10	25	10	29	16	18	4
22	20	− 7	17	1	19	8	17	14	26	1	18	2	28	5	20	12	28	5	22	16	23	15	23	19	24	6
23	26	7	28	13	22	9	23	14	29	20	29	10	31	15	32	16	30	20	32	19	32	17	31	20	27	15
24	21	8	42	17	24	12	24	13	28	17	33	21	36	25	34	21	30	22	34	28	34	22	33	27	30	20
25	25	9	13	7	12	0	13	− 2	29	9	27	14	28	17	23	11	30	17	31	5	22	12	33	12	16	12
26	31	16	29	− 3	24	− 3	27	7	37	9	32	5	36	3	37	6	41	11	33	− 3	34	9	30	6	22	− 4
27	33	16	28	2	22	0	26	16	34	16	34	15	36	11	32	16	38	4	25	18	33	18	30	16	26	8
28	29	10	13	13	2	− 1	16	− 9	36	20	38	6	28	15	35	5	37	24	23	3	26	8	25	5	16	13
29	31	7	10	−13	7	−20	4	−15	35	11	17	5	20	4	10	− 1	29	8	3	− 8	9	− 1	6	− 1	5	−12
30	42	26	37	−14	37	−18	40	4	45	20	40	17	43	11	39	7	51	22	36	− 4	38	7	28	0	30	−12
31	46	26	40	− 8	37	7	37	22	51	22	43	24	45	21	43	26	48	26	47	32	48	32	48	28	38	20
Means	20.6	4.1	24.1	5.9	18.8	1.4	19.2	6.3	27.8	6.9	26.9	9.7	29.9	12.5	29.4	13.0	29.6	10.4	30.5	15.2	29.1	15.3	33.2	19.4	22.7	10.3

Climatological Data for December, 1909.
DISTRICT No. 7, LOWER MISSISSIPPI VALLEY.

ISAAC M. CLINE, District Editor.

GENERAL SUMMARY.

Cold weather prevailed generally during the month, except that temperatures were mild from the 1st to 4th and on the 31st. The mean temperature was below the normal in all portions of the district. Freezing temperatures or killing frosts occured to the Gulf Coast, except at Burrwood, Plaquemines Parish, La. Monthly mean temperatures and departures from the normal for the various States and areas are reported as follows: Colorado area, 20.8°, −9.5°; New Mexico area, 28.4°, −5.5°; Texas area, 34.2°, −8.2°; Kansas area, 25.3°, −8.6°; Oklahoma, 31.9°, −7.1°; Missouri area, 28.9°, −7.6°; Tennessee area, 34.8°, −6.2°; Arkansas, 35.3°, −6.8°; Mississippi area, 40.3°, −7.1°; Louisiana, 46.2°, −4.8°.

The precipitation was very unevenly distributed, and was above the normal over all the States and areas, except in Oklahoma and the Tennessee area where there was a deficiency. There was scattered precipitation every day, but there was no well-defined wet period. The precipitation during the last decade was generally light, except that it was moderately heavy in Arkansas, Louisiana, and the Tennessee and Mississippi areas on the 24th and 25th. None occurred in the New Mexico area from the 24th to 31st, inclusive. The precipitation was mainly in the form of snow and sleet in the northern and western portions of the district and rain in the southern portion. Monthly precipitation and departures from the normal for the various States and parts of States are reported as follows: Colorado area, 1.08, +0.05; New Mexico area, 0.68, +0.12; Texas area, 1.82, +0.36; Kansas area, 1.18, +0.20; Oklahoma, 1.32, −0.19; Missouri area, 2.98, +0.41; Tennessee area, 4.50, −0.04; Arkansas, 5.26, +1.35; Mississippi area, 5.67, +0.17; Louisiana, 6.58, +2.10.

TEMPERATURE.

Abnormally low temperature prevailed and the monthly mean was generally the lowest of record for December. The mean temperature for the district averaged 6.9° below the normal, and the deficiency was more than 9° over the Colorado area, the western and central portions of the Kansas area, the northeastern portion of the Texas area, and the east-central portion of the Mississippi area. The highest monthly mean temperature, 56.2°, occured at Burrwood, Plaquemines Parish, La., and the lowest, 11.2°, at Leadville, Lake County, Colo. The monthly maximum reached or exceeded 70° at some stations in all portions of the district, except in the Colorado area. The first 4 days and the last day of the month were comparatively warm, generally. In Oklahoma and in the Colorado, New Mexico, Texas, and Kansas areas the monthly maximums occurred generally on the 31st, although several stations in Oklahoma and in the Kansas and Texas areas reported the maximum as occurring on the 1st or 3d; over the remainder of the district the maximum temperature occurred in most localities on the 3d or 4th. The highest temperature recorded was 85° at Gage, Okla., on the 31st. A maximum temperature of 84° was recorded at Tchula, Miss., and at Opelousas, La., on the 4th. The monthly minimum temperatures occurred generally from the 17th to 20th, except in Oklahoma and the Kansas area, where the minimum occurred at several stations on the 7th or 8th, and in Louisiana, where the lowest was recorded in many localities on the 30th. The lowest temperature recorded was −33° at Elizabethtown, N. Mex., and a minimum of −25° was recorded at Westcliffe, Colo. The lowest monthly mean minimum temperature, 0.4°, occurred at Leadville, Colo. The low mean temperature in the western portion of the district was due more to a deficiency in the day temperatures than to abnormally low minimums. A minimum temperature of −11° was recorded at Tulia, Tex., on the 20th, the lowest minimum temperature at that place for December during the past 18 years. Taken as a whole, the weather over the district was the severest on record for December.

PRECIPITATION BY DRAINAGE AREAS.

Arkansas River and tributaries.—Light to moderate precipitation occurred over the Arkansas Basin. The amounts were unevenly distributed north of the Arkansas proper, being above the normal in some localities and below in others, but south of this stream there was a deficiency, except at a few widely scattered stations. Over the headwaters of the Arkansas in Colorado, the amounts from 33 stations ranged from 0.14 inch to 3.05 inches, and averaged 1.11 inches, being about 0.1 inch above the normal. Five stations reported more than 2 inches and 10 less than 0.5 inch. Over the stretches of the Arkansas Basin proper that lie in Kansas and Oklahoma, the precipitation increased generally from west to east and the amounts from 37 stations averaged 1.27 inches, being about 0.3 inch above the normal. Six stations reported more than 2 inches and 16 less than 1 inch. The precipitation over the Cimarron Basin was generally light, the amounts ranging from 0.06 inch to 1.39 inches. The average from 15 stations was 0.55 inch, being about 0.4 inch below the normal. Only 1 station reported more than 1 inch and 2 stations reported less than 0.25 inch. Over the headwaters of the Canadian in New Mexico the amounts from 37 stations ranged from 0.06 inch to 1.35 inches and averaged 0.68 inch; 8 stations reported more than 1 inch; departures from the normal were slight. From the New Mexico line to its junction with the Arkansas, the precipitation in the Canadian Basin, from 21 stations, averaged 1.18 inches, being about 0.2 inch below the normal. Three stations reported more than 2 inches and 9 less than 0.5 inch. The amounts reported from 10 stations in the Verdigris Basin averaged 1.19 inches, being about 0.3 inch above the normal. The precipitation in this area ranged from 0.58 inch to 2.06 inches. Over the Neosho Basin the amounts from 13 stations averaged 1.89 inches, being about 0.5 inch above the normal. The greatest precipitation in this area was 2.80 inches and the least 1.13 inches. The precipitation over that portion of the Arkansas Basin from the Oklahoma-Arkansas line to its junction with the Mississippi was generally heavy; the amounts from 15 stations averaged 4.21 inches, being about 0.6 inch above the normal. Three stations reported more than 6 inches and only 1 less than 2 inches.

Red River and tributaries.—Light precipitation occurred over the upper portion, and moderate to heavy precipitation occurred generally over the lower portion of this drainage area. From the headwaters in New Mexico to the 97th meridian the amounts from 28 stations averaged 0.57 inch, being about 0.8 inch below the normal; only 3 stations reported more than 1 inch. To the eastward of the 97th meridian the precipitation from 27 stations averaged 5.65 inches and was about 2 inches above the normal. The amounts ranged from 1.91 to 9.35 inches; more than 7 inches occurred at 7 stations and there was less than 3 inches at 2 stations. The excess amounted to more than 4 inches over that portion of this area that lies in Arkansas and from 2 to 3 inches in Louisiana.

Mississippi south of St. Louis and small tributaries.—Heavy precipitation occurred over the western and central portions of this drainage area. To the west of the Mississippi there was an excess, except at a few widely-scattered stations, while to the

east there was a slight deficiency at most stations, except in northern Mississippi. In the immediate Mississippi Valley the precipitation from 33 stations averaged 4.32 inches, being about 0.2 inch above the normal. The amounts ranged from 2.04 to 7.88 inches; 9 stations reported more than 5 inches and 4 less than 3 inches. Over the Meramec Basin the precipitation ranged generally between 2 and 4 inches, averaged 2.89 inches, and was about 0.8 inch above the normal. The precipitation was, as a rule, uniformly distributed over the White River Valley. The amounts from 22 stations ranged from 1.98 to 7.08 inches, and averaged 3.95 inches. Four stations reported more than 5 inches and 5 less than 3 inches. The precipitation was above the normal, except at 3 stations, and the average excess was about 0.5 inch. Over the Yazoo Basin the precipitation ranged from 2.96 to 8.27 inches, and the amounts from 26 stations averaged 6.28 inches; 10 stations reported more than 7 inches and only 1 less than 3 inches. More than the normal amount of precipitation occurred in nearly all portions of this area, and the average excess was about 1 inch. The precipitation was comparatively light throughout the basin of the Big Black, the average, 3.82 inches, being about 1 inch below the normal; the amounts ranged from 2.86 to 4.39 inches. Heavy precipitation occurred over nearly all portions of the Ouachita Basin. The amounts from 19 stations ranged from 4.10 to 10.09 inches and averaged 6.64 inches, being 2.4 inches above the normal; 11 stations reported more than 7 inches and 6 less than 5 inches. There was an excess of more than 4 inches over the headwaters in Arkansas, and near its junction with the Red in Louisiana. The excess amounted to less than 0.5 inch near the Arkansas-Louisiana line and there was a slight deficiency at a few stations in northern Louisiana.

Louisiana coastal plain.—Heavy precipitation occurred generally over this area. The amounts from 22 stations ranged from 4.89 to 9.53 inches and averaged 7.05 inches, being 2.5 inches above the normal. Five stations reported more than 8 inches. The excess amounted to more than 2 inches at 14 stations and exceeded 4 inches at 3 stations.

SNOWFALL.

Snow occurred in all portions of the district, except in the southern portions of Louisiana and Mississippi, and was heavier than usual for December. The amounts ranged from a trace in northeastern Louisiana to 45.0 inches at Hermit Lake, Colo. In the Colorado area snow occurred at some station on every day of the month, the fall being heavy, and there was much drifting; but on account of the severe cold it did not pack well in the gulches. In the New Mexico area the snowfall was the heaviest in several years. In the Texas area the precipitation was practically all in the form of snow and the fall was quite heavy, although there was none on the ground at the close of the month. In the Kansas area the snowfall was unevenly distributed; there was nearly 6 inches over the Cimarron Valley, except in Clark and Comanche counties where it was 1 to 2 inches. In the Valley of the Arkansas proper the amounts ranged from 2 to 10 inches, being greatest in the west-central portion. In the Verdigris Valley the amounts ranged from 3 to 5 inches; and in the Neosho Valley, 4 to 10 inches. There was much snow and sleet in Arkansas, Louisiana, and the Missouri and Tennessee areas, and in the northern portion of the Mississippi area. One station in Louisiana reported 7 inches. The average snowfall for the various States and parts of States (in inches), derived from the reports of those stations which recorded snow, was as follows: Colorado area, 15.1; New Mexico area, 7.8; Texas area, 3.2; Kansas area, 4.7; Oklahoma, 2.8; Missouri area, 5.2; Tennessee area, 1.5; Arkansas, 3.3; Mississippi area, 3.6; Louisiana, 1.3.

RIVERS.

All streams in that portion of the Arkansas Basin that lie in Kansas and Oklahoma were bank full at the opening of the month. There was very little run-off from precipitation during the month on account of the continued freezing temperature. At Little Rock the river rose gradually until the 10th, when a stage of 10.5 feet was recorded, after which there was a steady fall until the close of the month, when the stage was 3.6 feet.

Relatively high stages were recorded in the upper portion of the Red River during the early part of the month. At Denison, Tex., the lowest stage was 0.8 foot on the 1st and the highest 9.2 feet on the 2d. At Arthur City, Tex., the highest stage, 15.8 feet, occurred on the 3d, after which there was a slow, steady fall until the 26th, when the stage was 6 feet; a slight rise commenced on the 27th and the stage was 7 feet at the close of the month. There was a rise at Fulton, Ark., from 7.7 feet on the 1st to 18 feet on the 8th, after which there was a steady fall, except on a few dates, and at the close of the month the stage was 11 feet. At Shreveport, La., the stage fell from −0.6 foot on the 1st to −1.5 feet on the 4th, after which there was a sharp rise, reaching a stage of 7 feet on the 10th. During the remainder of the month, the stage ranged between 2 and 6 feet. At Alexandria, La., the lowest stage was 1.7 feet on the 8th and the highest, 11.2 feet, on the 14th. The river was rising slowly at the close of the month and the stage was 7.6 feet.

Slight changes took place in the stages of the Ouachita at Camden, Ark., during the first few days of the month, after which there was a rise and the highest stage, 25.2 feet, was recorded on the 16th. The stage at the close of the month was 17.3 feet and falling. The river was nearly stationary at Monroe, La., during the first half of the month with a stage of 3 to 5 feet. There was a steady rise during the latter half of the month and the stage was 16.6 feet on the 31st.

Below St. Louis the Mississippi was falling at all stations at the close of the month. The highest stage during the month occurred as follows: Memphis, Tenn., 17.3, 13th and 14th; Helena, Ark., 21.7, 14th; Arkansas City, Ark., 28.4, 16th; Vicksburg, Miss., 21.3, 18th; Natchez, Miss., 21.9, 20th; Baton Rouge, La., 14.9, 22d; Donaldsonville, La., 10.0, 21st and 22d; and New Orleans, La., 6.8 on the 25th.

NOTES.

Some loss of life resulted from the snowslides in the San Juan Mountains, Colorado, and railroad traffic was maintained with difficulty and at heavy expense.

A thunderstorm, with sleet, occurred in the central and eastern portions of Kansas on the 4th, the depth of the sleet ranging from 2 to 4 inches. The sleet materially interfered with all classes of transportation and farm traffic. The Neosho River, Kansas, was frozen over after the 13th, the thickness of the ice at the close of the month being 6 inches.

Snow in Kansas and Missouri stopped the gathering of corn, but formed a good protection for the wheat fields during the severe cold.

Reports from Missouri indicate considerable suffering by the poorer classes of people and by animals and fowls as a result of the severe cold.

As an index of the severe cold in Oklahoma the North Canadian River was frozen over at Beaver during the entire month.

Low water in the Arkansas River resulted in the suspension of navigation after December 23.

TABLE 1.—*Climatological data for December, 1909. District No. 7, Lower Mississippi Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Colorado.																				
Blaine	Baca	3,935	17	24.8	− 8.7	71	31	− 5	5	48	0.30	− 0.34	0.20	5.0	3	11	13	7	w.	M. M. Meyers.
Buena Vista	Chaffee	7,955	9	17.2	.....	46	30	−20	19†	50	1.75	.....	1.10	18.5	4	.....	.....	.....	nw.	M. D. Bowen.
Calhan	El Paso	6,700	2	18.6°	.....	56°	31	−14°	18	37°	0.80	.....	0.60	8.0	3	.....	.....	.....	sw.	H. B. Rice.
Canon City	Fremont	5,329	21	27.6	−10.2	62	31	−11	18	43	0.86	+ 0.45	0.33	12.0	3	23	5	3	n.	Thomas J. Tynan.
Colorado Springs	El Paso	6,098	30	21.8	− 9.2	60	31	−15	18	39	0.34	+ 0.10	0.22	3.4	4	21	6	4	n.	Colorado College.
Cripple Creek	Teller	9,396	9	.....	.....	.....	.....	.....	.....	.....	1.17	.....	0.40	22.0	6	.....	.....	.....	.....	F. G. Willis.
Cuchara Camps	Huerfano	8,200	.....	.....	.....	.....	.....	.....	.....	.....	1.27	.....	0.54	16.5	5	18	11	3	sw.	George A. Mayes.
Eads	Kiowa	4,209	2	20.6	.....	62	31	−12	5	42	0.30	.....	0.30	3.0	1	.....	.....	.....	n.	W. H. Lauck.
Fairview	Custer	9,500	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Elizabeth L. Gray.
Florence	Fremont	5,185	.....	27.4	.....	63	31	1	8†	48	1.50	.....	0.90	14.0	2	22	0	9	se.	W. G. Fish.
Garfield	Chaffee	9,510	.....	.....	.....	.....	.....	.....	.....	.....	2.60	.....	0.78	33.5	8	16	7	8	.....	Lloyd N. Felton.
Glen Eyrie	El Paso	6,500	17	20.8	−10.8	63	31	−21	18	41	0.33	− 0.04	0.18	3.5	3	21	8	2	n.	C. Nickell.
Hampe	Elbert	5,400	16	17.0	−11.5	60	31	−20	5	49	0.78	+ 0.40	0.40	10.5	7	17	4	10	n.	W. Hamp.
Hermit Lake	Custer	10,000	.....	.....	.....	.....	.....	.....	.....	.....	3.00	.....	0.98	45.0	8	4	16	11	sw.	Jno. E. Graham.
Hoehne (near)	Las Animas	5,700	17	.....	.....	51°	29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	w.	S. W. DeBusk.
Holly	Prowers	3,380	14	23.8	.....	64	31	− 5	5	45	0.16	− 0.27	0.06	3.0	3	17	10	4	n.	R. I. Arneson.
Lake Moraine	El Paso	10,265	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Joseph Strong.
Lamar	Prowers	3,592	19	23.0	−10.3	62	31	− 4	5	39	0.38	− 0.20	0.15	5.0	4	17	9	5	ne.	J. T. Lawless.
Las Animas	Bent	3,899	41	23.2	− 6.5	61	31	− 6	19	47	0.39	+ 0.03	0.23	8.5	2	22	2	7	n.	F. M. Tague.
La Veta Pass	Costilla	9,000	.....	.....	.....	.....	.....	.....	.....	.....	1.64	.....	0.85	25.8	6	12	11	8	w.	Norvin B. Lively.
Leadville	Lake	10,248	13	11.2	− 8.9	42	30	−19	18	45	1.74	+ 0.71	0.44	17.5	18	.....	.....	.....	n.	U. S. Weather Bureau
Limon (near)	Elbert	5,360	2	17.9	.....	46	31	−15	22	45	0.24	.....	0.20	3.5	2	22	4	5	nw.	John Lesher.
Marshall Pass	Saguache	10,846	6	.....	.....	.....	.....	.....	.....	.....	1.49	.....	0.38	11.9	6	8	21	2	w.	W. D. Lillard.
North Lake	Las Animas	8,700	.....	.....	.....	.....	.....	.....	.....	.....	2.20	.....	1.47	23.5	6	17	3	11	w.	Guy H. Crane.
Pueblo	Pueblo	4,734	21	20.2	−11.5	61	31	−16	18	37	0.72	+ 0.19	0.40	8.6	8	16	12	3	nw.	U. S. Weather Bureau.
Rockyford (near)	Otero	4,177	20	22.2	− 9.1	64	31	−13	19	48	0.14	− 0.30	0.09	2.2	2	25	0	6	w.	P. K. Blinn.
St. Elmo	Chaffee	9,500	.....	.....	.....	.....	.....	.....	.....	.....	2.54	.....	0.90	30.2	8	.....	.....	.....	w.	Daniel Clark.
Salida	....do	7,035	11	.....	.....	.....	.....	.....	.....	.....	1.59	+ 1.11	0.84	20.0	3	26	1	4	w.	M. D. L. Buell.
Santa Clara	Huerfano	8,250	14	21.8	− 6.3	57	31	−12	18	39	0.96	− 0.88	0.34	24.5	7	17	11	3	.....	Lincoln Morris.
Sheridan Lake	Kiowa	4,065	8	18.0	.....	54	31	−10	5	40	0.26	.....	0.12	3.0	4	17	0	14	nw.	Howard Gamble.
Stonewall	Las Animas	8,000	3	.....	.....	.....	.....	.....	.....	.....	0.59	.....	0.20	14.0	5	17	10	4	.....	J. W. Shouse.
Trinidad	....do	5,994	14	.....	.....	.....	.....	.....	.....	.....	0.34	+ 0.30	0.12	17.0	4	19	6	6	.....	Mrs. Maggie Butler.
Victor (near)	Teller	10,100	5	22.7	.....	51	31	− 3	17†	36	0.81	.....	0.42	17.0	5	27	1	3	e.	Fred Jones.
Vilas	Baca	3,935	19	.....	.....	.....	.....	.....	.....	.....	0.65	+ 0.16	0.40	T.	2	15	11	5	nw.	Carrie Konkel.
Westcliffe	Custer	7,864	15	15.8	−10.3	51	30	−25	19	51	0.74	+ 0.06	0.45	16.0	4	13	9	9	se.	Zack Jordan.
Winfield	Chaffee	9,765	.....	.....	.....	.....	.....	.....	.....	.....	1.26	.....	0.51	21.0	9	7	16	8	w.	John G. Payne.
Wortman	Lake	11,250	9	.....	.....	.....	.....	.....	.....	.....	3.05	.....	0.72	44.7	12	3	3	25	nw.	George C. Wortman.
New Mexico.																				
Abbott	Mora	5,771	.....	.....	.....	.....	.....	.....	.....	.....	0.46	.....	0.16	6.0	4	23	4	4	w.	Agt. E. P. & S. W. Ry.
Albert	Union	4,700	19	30.4	− 4.5	66	31	4	5†	37	0.52	− 0.18	0.24	6.0	4	20	4	7	w.	Andrew Knell.
Arch (near)	Roosevelt	.....	.....	.....	.....	75°	13†	.....	.....	40°	1.00	.....	1.00	4.0	2	19	0	12	n.	Wm. A. Elliott.
Aurora	Colfax	5,849	.....	.....	.....	.....	.....	.....	.....	.....	1.23	.....	0.74	18.5	4	13	10	6	nw.	Miss Juanita Lucero.
Bell Ranch	San Miguel	4,500	5	32.1	.....	63	2	− 7	19	48	0.15	− 0.33	0.05	1.0	5	16	14	1	sw.	C. M. O'Donel.
Black Lake	Colfax	8,348	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Ralph T. Martines.
Cabesa	San Miguel	5,406	.....	.....	.....	.....	.....	.....	.....	.....	0.90	.....	0.50	5.5	4	10	18	3	w.	Agt. E. P. & S. W. Ry.
Campana	....do	4,493	.....	.....	.....	.....	.....	.....	.....	.....	0.86	.....	0.36	9.0	5	6	15	10	nw.	Do.
Chacon	Mora	9,000	.....	.....	.....	.....	.....	.....	.....	.....	1.09	.....	0.48	13.0	4	11	16	4	w.	Alfred Lucero.
Cimarron (near)	Colfax	6,385	4	22.0	.....	60	31	−16	18	50	1.04	.....	0.56	15.0	4	16	13	2	e.	Wm. French.
Clayton	Union	5,178	5	29.4	.....	68	30	0	5†	38	0.70	.....	0.30	8.0	3	17	11	2	w.	Dr. W. W. Chilton.
Cuervo	Guadalupe	4,849	.....	33.3	.....	67	31	0	18	33	0.06	.....	0.04	1.2	3	18	9	4	a.	Agt. E. P. & S. W. Ry.
Dawson	Colfax	6,396	.....	.....	.....	.....	.....	.....	.....	.....	0.84	.....	0.30	11.5	4	20	4	7	.....	Do.
Dorsey (near)	....do	6,600	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo T. Lambert.
Elizabethtown	....do	8,465	3	14.1	.....	45	31	−33	19	50	1.07	.....	0.45	11.0	4	19	10	2	nw.	Miss Mabel Carrington.
Fort Union	Mora	6,835	40	25.6	− 7.8	68	31	−13	19	48	0.43	− 0.06	0.24	2.5	3	25	4	2	ne.	M. C. Needham.
Hayden	Union	4,444	.....	28.6	.....	60	31	− 6	19	38	0.68	.....	0.30	7.5	4	23	0	8	n.	George L. Cook.
Lake Alice	Colfax	7,160	.....	.....	.....	.....	.....	−14	15	.....	1.25	.....	0.98	22.0	4	.....	.....	.....	.....	Raton Water Co.
Logan	Quay	3,851	3	31.0ª	.....	75ª	31	− 7ª	19	48ª	0.28	.....	0.28	3.0	2	24	3	4	ne.	John B. Reneau.
Los Alamos	San Miguel	6,789	5	.....	.....	.....	.....	.....	.....	.....	0.24	.....	0.15	4.5	3	.....	.....	.....	.....	Wm. Frank, sr.
Maxwell (near)	Colfax	5,894	3	.....	.....	.....	.....	.....	.....	.....	0.40	.....	0.19	5.0	3	.....	.....	.....	.....	D. N. Jackson.
Melrose	Curry	4,400	1	31.3	.....	70	31	−12	20	45	0.34	.....	0.16	4.0	3	25	2	4	sw.	Miss Los E. Porter.
Miami Ranch	Colfax	6,000	2	20.9ª	.....	50ª	2†	−20ª	19	46ª	0.85	.....	0.45	11.0	3	24	5	2	w.	Farmers' Devel. Co.
Montoya	Quay	4,335	.....	.....	.....	.....	.....	.....	.....	.....	0.38	.....	0.38	4.0	1	26	0	5	.....	Agt. E. P. & S. W. Ry.
Nara Visa	....do	4,225	4	30.6	.....	70	31	2	18	33	1.00	.....	0.50	9.0	3	22	1	8	n.	Willard Belknap.
Raton	Colfax	6,600	12	26.7	− 4.3	62	31	− 6	19	41	1.35	+ 0.98	1.15	19.0	3	28	3	0	w.	Prof. R. C. Crum.
Rociado	San Miguel	8,200	6	24.5	.....	62	30	−17	18	55	1.03	.....	0.28	14.0	6	16	14	1	w.	Chas. F. Rudolph.
Roy	Mora	5,884	.....	.....	.....	.....	.....	.....	.....	.....	0.41	.....	0.24	5.0	3	18	10	3	n.	Agt. E. P. & S. W. Ry.
San Jon	Quay	4,200	3	31.4	.....	73	31	− 9	19	46	0.29	.....	0.25	2.5	3	13	11	7	sw.	Jesse T. White.
Salano (1)	Mora	5,622	.....	24.5	.....	65	31	− 5	19	39	0.42	.....	0.16	6.0	3	17	5	9	sw.	F. M. Hughes.
Salano (2)	....do	5,622	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agt. E. P. & S. W. Ry.
Springer	Colfax	5,857	14	.....	.....	60	31	−21	19†	45	0.72	+ 0.18	0.36	8.0	2	18	13	0	w.	Agt. A. T. & S. F. Ry.
Taylor	....do	5,661	.....	.....	.....	.....	.....	.....	.....	.....	0.83	.....	0.24	11.0	5	23	2	6	sw.	Agt. E. P. & S. W. Ry.
Trementina	San Miguel	.....	2	.....	.....	.....	.....	.....	.....	.....	0.45	.....	0.25	4.5	3	8	21	2	e.	Miss Alice Blake.
Tucumcari (1)	Quay	4,194	5	33.4	.....	73	31	− 3	18	40	0.20	.....	0.12	2.5	2	28	2	1	sw.	John F. Seaman.
Tucumcari (2)	....do	4,194	.....	.....	.....	.....	.....	.....	.....	.....	0.41	.....	0.34	4.5	2	16	12	3	sw.	Agt. E. P. & S. W. Ry.
Vermejo Park	Colfax	7,600	6	22.2	.....	61	30	−16	19	47	0.45	.....	0.27	5.0	2	21	1	9	w.	H. W. Adams.
Wagon Mound (near)	Mora	6,300	1	21.0	.....	58	31	−22	19	45	0.71	.....	0.26	9.5	3	21	9	1	ne.	Guy L. Barnes.
Texas.																				
Amarillo	Potter	3,676	17	31.0	− 5.4	75	31	3	19	40	0.54	− 0.29	0.41	5.3	4	15	10	6	n.	U. S. Weather Bureau.
Arthur	Lamar	590	17	.....	.....	.....	.....	.....	.....	.....	2.78	+ 0.19	1.70	2.0	5	13	2	16	.....	J. B. Hodnett.
Bonham	Fannin	566	6	38.0	.....	76	3	− 3	19	39	4.42	.....	2.00	3.0	5	15	10	6	n.	B. S. Lovelace.
Canadian	Hemphill	2,339	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. M. Vance.
Channing	Hartley	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. F. Land Inv. Co.
Childress	Childress	1,869	16	.....	.....	.....	.....	.....	.....	.....	0.40	− 0.71	0.30	4.0	2	18	4	9	n.	W. E. Davis.
Chillicothe	Hardeman	1,406	1	.....	.....	.....	.....	.....	.....	.....	0.60	.....	0.20	4.0	6	.....	.....	.....	.....	A. B. Conner.
Clarendon	Donley	2,719	4	34.3	.....	75	31	1	20	44	0.65	.....	0.40	4.0	3	22	1	8	nw.	J. W. O'Neill.
Clarkesville	Red River	442	4	38.8	.....	76	4	12	20†	44	4.72	.....	1.75	2.2	6	13	11	7	.....	J. B. McClelland.
Claude	Armstrong	3,397	4	.....	.....	.....	.....	.....	.....	.....	0.75	.....	0.75	3.0	1	.....	.....	.....	.....	Agt. F. W. & D. C. Ry.
Dalhart	Dallam	3,998	4	25.6	.....	63ª	30	− 2	5	40ª	0.15	.....	0.10	1.5	2	14	4	13	s.	F. L. Kennard.
Denison	Grayson	.....	1	.....	.....	.....	.....	.....	.....	.....	3.50	.....	1.58	3.0	6	15	2	14	n.	Wm. S. Faires.
Henrietta	Clay	915	14	35.2	− 9.1	71	31	2	20	38	0.48	− 1.04	0.45	5.0	2	22	0	9	n.	C. K. Brown.
Hereford	Deaf Smith	3,750	4	29.6	.....	70	31	− 8	19†	36	0.40	.....	0.20	4.0	2	17	7	7	sw.	A. C. Elliott.
Higgins	Lipscomb	2,760	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	L. D. Shaw.
McLean	Gray	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. R. Patterson.
Memphis	Hall	2,067	4	32.0ª	.....	68ª	10	2ª	19	40ª	0.40	.....	0.20	4.0	2	14	6	11	.....	Agt. Ft. W. & D. C. Ry.
Miami	Roberts	2,743	3	31.9ᵇ	.....	73	31	6ᵖ	19	38ᵖ	0.44	.....	0.34	1.0	2	23	2	6	n.	Jerome Harris.
Mobeetie	Wheeler	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.10	.....	0.10	1.0	1	18	8	5	sw.	R. A. Choate.
Nazareth	Castro	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	P. A. Kalein.

TABLE 1.—*Climatological data for December, 1909. District No. 7*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Texas—Cont'd.																				
Ochiltree	Ochiltree		1								0.00		0.00	0.0	0					S. T. Allen.
Pampa	Gray	3,226																		B. E. Finley.
Paris	Lamar	592	20	36.6[a]	− 9.5	77[a]	4	11	20†	36[a]	5.59	+ 3.14	1.80	3.5	6	15	1	15	n.	N. O. Enloe.
Plemons	Hutchinson		2	30.6		76	31	− 2	19	50	0.25		0.20	1.5	3	21	2	8	n.	C. S. Solomon.
Quanah	Hardeman	1,563	4	32.6		62	31	7	20	31	0.26		0.20	2.5	3	26	0	5	n.	E. E. Miller.
Sherman	Grayson	745	16																	R. A. Gibbs.
Sulphur Springs	Hopkins	530	17	37.9	− 8.9	77	4	10	20	36	5.03	+ 1.64	1.80	4.3	8	14	2	15		W. B. Baxter.
Texline	Dallam	4,694	4																	Agt. Ft. W. & D. C. Ry
Tulia	Swisher	3,501	11	31.8		67	10†	−11	20	48	0.58		0.30	5.8	3	7	18	6	sw.	Lou Mulhall.
Wichita Falls	Wichita	958	4								1.30	− 0.39	0.75	3.0	4					J. B. Nicholson.
Kansas.																				
Anthony	Harper	1,329	12	28.0		54	31	4	7	36	1.19	+ 0.34	0.96	2.0	4	13	13	5	n.	R. H. Beebe.
Ashland	Clark	1,951	2	28.2	− 7.4	66	30	4	7	50	0.18	− 0.45	0.05	0.9	5	18	10	3	n.	C. W. Carson.
Burlington	Coffey	1,010	16	25.4	− 7.0	55	1	− 2	8	37	2.03	+ 0.68	1.19	4.0	5	15	8	8	nw.	A. W. Maxwell.
Chanute	Neosho	940	5	26.6		60	1	− 3	8	38	1.94		1.04	5.5	3	14	13	2	nw.	Chase W. Brown.
Cimarron	Gray	2,700	3																	Fred Mallonee.
Coldwater	Comanche	2,090	11	26.4		63	31	− 1	7	39	0.06	− 0.62	0.06	1.0	1	17	9	5	n.	J. L. Stanley.
Columbus	Cherokee	898	19	27.2	− 8.6	65	3	− 1	8	31	2.80	+ 0.43	0.75	4.2	7	18	5	8	nw.	O. E. Skinner.
Coolidge	Hamilton	3,346	13	23.2	− 8.1	62	3	− 8	5	47	0.70	+ 0.41	0.50	2.0	4	11	11	9	nw.	W. R. Padley.
Cottonwood Falls	Chase	1,234	5	23.2		54	1	− 2	7†	33	1.64		0.88	6.5	6	18	2	11	n.	E. B. Greene.
Council Grove	Morris	1,191		22.7		53	1	− 5	26	31	1.13		1.05	7.5	3	23	1	7	n.	Geo. W. Cleek, jr.
Cunningham	Kingman	1,680	21	27.8[b]	− 5.9	61[c]	30	0	7	42[c]						18	7	6	nw.	W. H. Morton.
Dodge City	Ford	2,513	35	22.2	− 9.4	63	31	− 4	7	38	0.79	+ 0.23	0.41	9.8	8	14	11	6	nw.	U. S. Weather Bureau.
El Dorado	Butler	1,291	7	25.8		55	1	− 2	8†	29	1.86		1.01	5.5	3	14	8	9	s.	W. Y. Miller.
Ellinwood	Barton	1,788	15	23.6	− 8.9	53	31	− 3	8	34	1.05	+ 0.34	0.29	7.0	5	5	19	7	nw.	Martin Musil.
Emporia	Lyon	1,138	25	23.2	−10.3	52	1	− 1	8	31	1.98	+ 0.89	0.90	9.0	4	15	6	10	nw.	W. H. Boyles.
Eureka	Greenwood	1,093	11	25.4		56	1	− 4	8	31	2.06	+ 1.20	1.05	3.0	5	16	9	6	nw.	T. C. Peffer.
Fall River	....do	925	13	27.1		57	1	− 4	8	32	1.70	+ 0.88	0.50	4.0	6	18	7	6	n.	J. McDaniel.
Fargo	Seward										0.62		0.40	5.8	6	13	9	9	nw.	Frank Swink.
Fredonia	Wilson	864	6	26.6		57	1	− 4	8	31	1.23		0.47	3.5	5	16	5	10	nw.	B. W. Holmes.
Garden City	Finney	2,836	15	24.6	− 7.0	66	31	− 3	7	44	0.70	+ 0.08	0.30	4.6	5	18	12	1	n.	B. F. Stocks.
Great Bend	Barton	1,850																		J. A. Pritchard.
Greensburg	Kiowa	2,235	2	25.6		65	31	− 3	7	41	0.28		0.15	2.2	3	17	3	11	nw.	C. C. Raymond.
Grenola	Elk	1,116	22	25.8[d]	− 9.0	56[a]	1	− 3	8†	33[a]	0.58	− 0.49	0.30	3.0	4	17	6	5	n.	R. M. Lawyer.
Howard	....do	1,112	2								0.97		0.48	3.5	4	21	3	7	n.	J. W. Eby.
Hugoton	Stevens		5	27.0		73	31	− 3	5	48	0.85		0.40	5.8	9	19	7	5	n.	J. A. Firmin.
Hutchinson	Reno	1,535	19	25.2	− 9.8	53	30	− 2	8	34	1.04	+ 0.13	0.34	4.5	5	17	4	10	nw.	E. S. Webster.
Independence	Montgomery	816	37	29.9	− 6.0	62	3	0	8†	35	1.45	− 0.48	0.72	5.4	3	14	5	12	n.	U. S. Weather Bureau.
Iola	Allen	984	3	24.3	− 8.2	57	1	− 2	8	32	1.73	+ 0.80	0.96	5.0	6	11	11	9	nw.	James Aikin.
Jetmore	Hodgeman	2,268	8	21.4		59	31	− 7	7†	43	0.65		0.50	6.5	3	8	18	5	nw.	B. B. Anawalt.
Kingman	Kingman	1,504	1	27.1		55	30	0	7	35	1.01		0.62	5.5	3	9	17	5	nw.	Rodney Torrey.
La Crosse	Rush	2,061	7	21.8		56	31	− 6	7†	37	0.66		0.23	6.0	4	18	6	7	nw.	C. H. Longstreth.
Lakin	Kearney	2,993	19	23.4	− 9.1	62	31	− 5	7	40	0.32	− 0.16	0.10	6.0	4	12	14	5	ne.	H. H. Wolcott.
Larned	Pawnee	2,090	5	23.6		60	31	− 4	8	35	0.56	− 0.04	0.20	5.0	4	16	9	6	n.	J. J. Bowman.
Lebo	Coffey	1,138	23	22.9	−11.1	53	1	− 3	8	35	1.73	+ 0.45	0.80	6.0	4	15	5	11	nw.	F. W. Schmitt.
Le Roy	....do	990									2.34		1.06	7.5	9	16	2	13	nw.	R. T. Nichols.
Liberal	Seward	2,843	2	26.6		72	31	−12	5	44	0.75		0.50	6.5	4	16	1	14	n.	Mrs. Nelia Poling.
Macksville	Stafford	2,032	16	24.1	−10.9	58	31	− 5	7	38	0.70	+ 0.18	0.38	6.0	4	11	12	8	nw.	Ed. F. Haberlein.
McPherson	McPherson	1,495	19	23.2	− 9.9	53	1	− 4	8	27	1.38	+ 0.49	0.40	10.5	6	18	6	7	nw.	C. A. David.
Madison	Greenwood	1,074	8																	D. D. McIntosh.
Marion	Marion	1,310	15	23.6	− 9.8	58	31	− 5	8	34	1.21	+ 0.33	0.42	7.5	5	10	15	6		S. P. Garrison.
Medicine Lodge	Barber	1,475	16	27.0	− 7.4	55	31	0	7	40	0.74	+ 0.01	0.41	5.0	3	22	4	5	n.	M. L. Rickenbrode.
Medora	Reno	1,480																		H. N. Renfrew.
Mt. Hope	Sedgwick	1,410	12								1.07	+ 0.21	0.50	0.5	4	15	8	8	nw.	J. E. McLeod.
Neosho Rapids	Lyon	1,092	4								1.61		0.44	0.1	6	17	1	13	nw.	J. K. Barnd.
Ness City	Ness	2,260	12	21.8[m]		44[m]	1†	− 3[m]	7	37[m]	0.37	− 0.08	0.12	4.0	4	8	7	5	nw.	C. F. Walden.
Newton	Harvey	1,454	12	23.8	− 9.5	52	1	− 1	7†	30	1.56	+ 0.87	0.56	2.3	6	20	2	9	nw.	N. I. Farris.
Norwich	Kingman	1,496	13	27.3	− 9.1	52	31	2	7	29	1.26	+ 0.47	0.83	2.0	4	12	15	4	nw.	Jas. M. Currigan.
Oswego	Labette	899	18	28.6	− 8.8	63	3	− 2	8	31	1.62	− 0.50	0.93	4.5	4	14	7	10	nw.	E. H. Ellsworth.
Pratt	Pratt	1,950	14	24.6	− 9.4	60	30	− 1	7	40	0.25	− 0.09	0.20	2.5	2	22	5	4		D. M. Adams.
Rome	Sumner	1,218	12	27.4	− 9.7	53	2†	− 4	8	31	0.96	− 0.05	0.56	4.0	2	19	4	8	n.	A. Y. Buckles.
Sedan	Chautauqua	834	24	27.8	− 8.2	60	1	− 2	8†	31	0.93	− 0.58	0.30	6.0	5	19	5	7	n.	M. A. Webb.
Toronto	Woodson	1,040	12	25.4	− 7.3	64	1	− 5	8	38	1.20	− 0.27	0.50	3.5	4	6	1	24	n.	T. W. Marshall.
Ulysses	Grant	3,027	15	24.0[e]	− 8.6	67[c]	31	0[f]	5†	45[e]	0.55	− 0.03	0.40	5.0	4	4	20	7	nw.	R. C. Harlan.
Walnut	Crawford	940	7	26.6		60	3	− 5	8	34	2.80		0.75	2.0	4	16	7	8	nw.	U. S. Weather Bureau.
Wichita	Sedgwick	1,377	22	24.8	− 9.4	51	31	0	7	27	1.31	+ 0.52	0.71	6.0	5	10	13	8	nw.	M. B. Light.
Winfield	Cowley	1,124	12	25.6	− 8.2	53	1†	− 2	9	32	1.66	+ 0.68	0.85	4.0	4	18	1	12	n.	J. W. Tipton.
Yates Center	Woodson	1,068	16	26.2	− 5.0	58	1	− 5	8	35	† 82	+ 0.57	0.87	5.0	5	12	11	8	nw.	
Oklahoma.																				Dr. J. P. McKinley.
Ada	Pontotoc	1,001	3																	G. D. Teeter.
Apache	Caddo		1	34.2		71	3	2	20	37	0.88		0.28	5.0	8	20	5	6	nw.	Geo E. Marsh.
Arapaho	Custer	1,575	16	32.5	− 5.6	60	10	9	7	34	0.73	− 0.34	0.28	2.3	5	20	6	5	nw.	H. T. Nisbett.
Ardmore	Carter	872	8	34.4		73	3	4	20	34	3.82		1.42	6.0	5	20	0	11	n.	Dr. A. P. Owens.
Bartlesville	Washington		3	29.2		68	3	4	7†	30	1.28		0.55	3.0	3	19	5	7	nw.	W. C. Frazer.
Beaver	Beaver	2,500	13	27.0	− 8.5	67	31	− 3	5	44	0.40	− 0.29	0.20	4.0	3	19	5	7	nw.	J. Landis.
Blackburn	Pawnee	800	5	30.2		71	3	− 1	9	34	1.03		0.46	3.0	4	21	6	4	sw.	L. M. Brink.
Buffalo	Harper		3																	U. S. Forest Service.
Cache	Comanche	1,350	4	32.2		67	4†	− 2	19	43	1.00		0.50	6.0	3	17	3	11	n.	Thomas Purcell.
Calvin	Hughes	713	5								3.72		1.68	2.0	6	19	0	12	n.	Chas. L. Tuttle.
Chandler	Lincoln	865	6	32.6		70	3	6	7	41	1.60		1.30	0.5	3	20	1	10	n.	Squire Humble.
Chattanooga	Comanche	1,150	4	34.8		74	31	3	20	50	0.63		0.20	2.0	5	14	9	8	se.	J. C. Good.
Chickasha	Grady	1,091	9	35.2[d]		72[d]	3	8[d]	20	34[d]	0.26		0.16	2.0	2	23	1	3	n.	J. P. Stutsman.
Cloud Chief	Washita	1,400	9	34.3		64	31	3	20	36	0.23		0.23	T.	1	15	11	5	nw.	N. A. Andress.
Dacoma	Woods	1,337	12	33.0[d]	− 3.8	59[f]	31	5	7	35[f]	0.25	− 0.80	0.15	1.5	2	15	11	5	nw.	Nelson Houk.
Durant	Bryan	643	9	34.0		72	3	5	21	43	3.88		1.75	3.5	5	17	3	11	n.	R. D. Barnes.
Eldorado	Jackson	1,456	3																	Uri B. Worcester.
Enid	Garfield	1,269	10			76[a]	31	8[d]	19†	51[d]	0.20		0.20	2.0	1	15	10	5	n.	Dr. J. D. Warford.
Erick	Beckham	2,058	6	32.5[b]				2	8	31	3.06	+ 1.22	1.00	0.8	5	16	7	8	n.	C. W. Prier.
Fairland	Ottawa	839	10	30.6	− 7.4	68	3				4.18		2.14	1.0	6	19	0	12	n.	John T. Welsh.
Fort Gibson	Muskogee	556	5													17	3	11	n.	B. B. Bradley.
Frederick	Gillman	1,293	6	34.7		74	31	0	20	44						17	10	4	n.	C. H. Holmes.
Gage	Ellis	2,136	7	30.1[b]		85	31	5[c]	7	39[c]	0.25		0.25	0.0	1	17	10	4	n.	G. W. Derrick.
Guthrie	Logan	1,000	7	34.4	− 4.4	66	3	4	7	34	0.89	− 0.45	0.50	3.3	6	17	1	13	n.	A. L. Mordt.
Guymon	Texas		1								1.60		0.60	16.0	4	23	0	8	n.	J. G. Harrington.
Harrington	Roger Mills		8	31.7		71	31	5	16	50	0.11		0.11	0.0	1	18	7	6	sw.	Edward Glendenning.
Hartshorne	Pittsburg	700	11	35.0	−10.4	66	3	1	20	37	5.20	+ 3.41	2.09	3.0	8	21	2		n.	A. C. Heald.
Healdton	Carter	900	16	33.2	− 9.3	78	3	− 5	20	48	0.65	− 1.93	0.30	3.0	3	20	6		n.	

TABLE 1.—*Climatological data for December, 1909. District No. 7*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Oklahoma—Cont'd.																			
Hennessey	Kingfisher	1,166	15	30.4	− 8.4	59	31	7	8	32	0.77	− 0.48	0.30	2.0	4	13	10	8	n.	W. W. Parks.
Hobart	Kiowa	1,396	6	33.6	.....	62	31	8	20	33	0.66	.....	0.42	3.5	2	14	12	5	n.	Roy Benedict.
Holdenville	Hughes	900	9	32.8	.....	70	3	8	20	32	3.85	.....	2.00	2.0	5	20	7	4	n.	Miss M. Rutherford.
Hooker	Texas	2,999	4	28.3	.....	75	31	−10	5	52	0.20	.....	0.15	4.0	3	10	0	21	n.	J. N. Kelly.
Hurley	Cimarron	.....	1	26.1	.....	69	31	− 4	18	35	0.45	.....	0.45	4.0	1	16	8	7	n.	C. W. Myers.
Idabel	McCurtain	474	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. W. B. McCaskill.
Jefferson	Grant	1,062	16	29.0	.....	54	31	5	7	30	0.28	.....	0.13	1.0	3	19	5	7	n.	J. M. Maddy.
Kenton	Cimarron	4,000	10	26.7	− 8.7	58	30	− 1	7†	40	0.60	+ 0.23	0.20	6.0	4	19	7	5	s.	L. A. Wikoff.
Kingfisher	Kingfisher	1,046	12	32.6	− 5.5	62	3	7	7	35	0.36	− 0.64	0.15	1.5	4	14	11	6	n.	J. C. Cross.
McAlester	Pittsburg	698	17	35.5	.....	66	3	10	20	34	2.18	.....	1.05	2.5	6	21	1	9	n.	Wm. Noble.
McComb	Pottawatomie	1,200	15	33.2	− 6.4	70	3	8	20	35	0.95	− 1.02	0.50	2.0	4	16	8	7	n.	Jas. E. McNair.
Mangum	Greer	1,585	17	.....	.....	68	31	10	7†	42	0.50	− 0.60	0.30	3.0	2	12	8	11	nw.	Wade N. Johnson.
Marlow	Stephens	1,292	9	32.7	− 7.5	78	30	11	7	59	0.45	− 0.56	0.15	5.0	6	16	0	15	n.	W. B. Anthony.
Meeker	Lincoln	1,030	16	33.5	− 5.2	72	3†	8	7	38	0.15	− 1.42	0.15	T.	1	22	2	7	n.	Dr. John H. Baugh.
Muskogee	Muscogee	614	11	33.6	− 7.1	69	3	9	7	32	3.67	+ 1.86	1.20	T.	4	13	7	11	n.	Prof. E. N. Collette.
Mutual	Woodward	.....	3	32.6	.....	66	31	8	18	41	0.30	.....	0.30	0.0	1	17	3	11	s.	Thos. Martin.
Neola	Caddo	1,500	4	32.2	.....	58	31	5	20	32	1.87	.....	1.00	3.4	6	20	6	5	ne.	R. M. Schooling.
Newkirk	Kay	1,149	13	27.8[d]	− 7.6	61[c]	3	− 1[f]	7†	32[f]	0.55	− 0.59	0.20	2.0	3	13	2	11	n.	P. H. Allright & Co.
Norman	Cleveland	1,171	16	33.2	− 6.1	71	3	8	7	46	0.48	− 1.01	0.20	1.3	3	20	6	5	n.	Walter H. Meier.
Okeene	Blaine	1,194	6	31.7	.....	58	31	7	7	33	0.32	.....	0.16	1.0	5	23	4	4	nw.	Dr. L. H. Murdock.
Oklahoma	Oklahoma	1,247	20	31.0	− 7.6	67	3	6	7	29	0.34	− 1.40	0.12	1.4	7	14	9	8	n.	U. S. Weather Bureau.
Okmulgee	Okmulgee	752	7	32.7	.....	70	3	8	7	42	1.34	.....	1.09	T.	2	23	2	6	n.	J. L. Maynard.
Paula Valley	Garvin	880	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. M. Foss.
Pawhuska	Osage	918	11	30.9	− 7.4	66	3	3	8†	30	1.25	− 0.52	0.45	3.5	5	16	9	6	nw.	R. C. Block.
Perry	Noble	1,060	12	31.2	− 7.0	64	3	3	7†	31	1.34	+ 0.09	0.65	3.5	5	19	4	8	n.	J. A. Douglas.
Ravia	Johnson	796	8	33.8	.....	74	3	0	20	38	1.91	.....	0.56	5.8	6	18	2	11	n.	R. G. Guptill.
Sac and Fox Agency	Canadian	900	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	D. J. Henderson.
Shawnee	Pottawatomie	1,041	9	31.6[b]	.....	72[b]	2	8[b]	5†	50[b]	1.42[b]	.....	1.13[b]	0.8[b]	4[b]	20[b]	1[b]	8[b]	n.	Neal R. Clark.
Snyder	Kiowa	1,356	3	34.0[c]	.....	72[c]	31	− 1[c]	19	41[c]	0.52	.....	0.20	3.0	5	17	4	7	n.	Dr. W. G. Woodard.
Stillwater	Payne	880	17	29.3	− 8.1	66	3	2	9	47	1.39	+ 0.11	0.76	2.1	8	20	2	9	n.	John M. Speidel.
Supply	Woodward	.....	2	29.8	.....	67	31	5	7	43	0.10	.....	0.10	T.	1	18	11	2	nw.	A. H. Trimbo.
Temple	Comanche	925	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	G. F. Fitch.
Tulsa (1)	Tulsa	700	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	William Hall.
Tulsa (2)	....do	702	5	32.2[c]	.....	67[f]	3	6	7†	30[f]	2.43	+ 0.61	1.48	4.0	6	16	4	11	n.	Miss Pearl E. Towers.
Vinita	Craig	698	6	32.0	.....	67	3	3	8	31	3.10	.....	1.00	5.0	5	22	3	6	n.	Lyman Bros.
Wagoner	Wagoner	588	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	S. L. Hatfield.
Waukomis	Garfield	1,258	13	32.1	− 7.0	60	1†	5	7	41	0.34	− 0.63	0.10	2.0	4	18	7	6	nw.	R. C. Shades.
Weatherford	Custer	1,639	8	33.2	.....	60	31	8	7	41	0.11	.....	0.04	0.7	3	18	8	5	n.	M. D. Reed.
Webbers Falls	Muskogee	479	11	31.9	− 9.7	66	3	9	9	35	2.29	+ 0.07	0.85	0.2	6	17	4	10	w.	B. D. Boulineau.
Whiteagle	Kay	945	4	30.1	.....	63	3	3	7†	31	0.64	.....	0.28	6.0	6	22	2	7	nw.	J. M. Dankwardt.
Woodward	Woodward	.....	1	30.4	.....	71	31	6	7	47	0.15	.....	0.13	0.7	2	21	6	4	n.	R. A. Boyle.
Missouri.																				
Belle	Maries	.....	17	24.6	−10.2	60	3†	−17	30	55	3.35	+ 1.06	1.75	12.0	6	4	15	12	nw.	A. J. Wofford.
Birchtree	Shannon	1,200	15	28.4[c]	− 8.0	70[c]	3	5[c]	7†	47[c]	2.28[c]	− 0.33	0.76[c]	2.0[c]	5[c]	16[c]	3[c]	8[c]	nw.	V. H. Kirkendall.
Cape Girardeau	Cape Girardeau	346	4	.....	.....	.....	.....	.....	.....	.....	2.04	.....	0.48	5.0	10	16	9	6	n.	D. L. Albert.
Caruthersville	Pemiscot	.....	18	34.1	− 5.7	76	3	9	9†	38	3.99	− 0.19	2.20	0.5	7	15	4	12	n.	H. E. Averill.
Dean	McDonald	.....	10	30.1	− 8.7	69	3	2	9	39	3.96	+ 1.94	1.23	3.0	7	20	1	10	nw.	H.E. Dean.
Doniphan	Ripley	440	5	30.9	.....	72	4	7	20†	32	4.07	.....	1.35	4.0	8	13	8	10	nw.	W. W. Martin.
Farmington	St. Francois	889	2	26.8	.....	63	4	− 6	30	36	2.19	.....	0.40	11.2	9	9[i]	0[i]	12[i]	.....	Miss Helen Montgomery.
Gano	Dent	.....	5	27.8	.....	65	4	− 3	30	40	2.58	.....	0.69	8.5	10	11	9	11	nw.	A. C. Leech.
Goodland	Iron	900	4	26.7	.....	64	4	− 5	30	38	2.44	.....	0.97	8.0	7	20	0	11	n.	F. M. Adams.
Greenville	Wayne	.....	14	31.8	− 4.4	70	4	6	30	34	3.41	+ 0.66	1.22	4.0	8	9	18	4	nw.	A. G. Templeton.
Ironton	Iron	925	31	27.8	− 6.7	66	4	− 3	30	41	2.85	− 0.17	0.90	7.0	9	9	2	20	nw.	W. H. Delano.
Jackson	Cape Girardeau	458	18	30.8	− 5.9	65	4†	2	30	30	3.20	− 0.14	1.08	6.0	8	9	7	15	n.	L. M. Bean.
Joplin	Jasper	979	30	29.8	.....	61	3	2	8	36	2.60	+ 0.31	1.20	4.5	5	18	4	9	nw.	Miss Elizabeth Russum.
Koshkonong	Oregon	911	9	31.4	.....	74	4	6	9	40	3.37	+ 0.34	1.00	1.5	8	12	9	10	nw.	J. W. Hitt.
Lamar	Barton	964	28	26.0	− 9.9	68	4	− 3	8†	44	2.70	+ 0.65	1.39	4.5	4	16	5	10	w.	E. H. Adams.
Marble Hill	Bollinger	420	16	28.5	− 7.7	59	2	0	30	33	3.75	+ 0.53	1.10	7.0	7	9	14	8	n.	A. F. Hendricks.
Marshfield	Webster	1,492	....	29.4[d]	.....	68[d]	1	− 5[d]	8	47[d]	1.20[d]	.....	0.90[d]	3.0[d]	2[d]	8[d]	8[d]	15[d]	w.	O. P. Keeler.
Mt. Vernon	Lawrence	1,480	33	28.2	− 9.2	68	5	− 4	8	50	2.97	+ 0.30	1.40	5.0	7	8	15	8	nw.	Dr. O. H. Brown.
Neosho	Newton	1,023	25	29.8	− 7.0	67	3	0	9	37	4.14	+ 1.44	0.99	3.5	7	17	4	10	nw.	H. D. Dean.
Oakfield	Franklin	793	17	26.1	− 8.9	62	5	− 6	30	41	2.65	+ 0.52	0.82	11.0	12	6	11	14	nw.	E. E. Steiner.
Olden	Howell	1,246	19	29.6	− 7.9	70	4	2	9	40	3.75	+ 0.99	0.80	2.2	6	13	7	11	nw.	J. D. Evans.
Perryville	Perry	582	1	26.4	.....	60	4	−10	29	38	2.39	.....	1.10	5.5	8	2	3	26	nw.	S. L. Cayton.
Poplar Bluff	Butler	343	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. C. Thomes.
Sikeston	Scott	328	14	32.9	− 5.4	70	4	5	30	28	4.32	+ 0.48	1.70	3.0	9	9	9	13	nw.	A. A. Harrison.
Springfield	Greene	1,350	22	26.5	− 9.0	64	4	− 1	8	34	2.25	− 0.42	1.19	3.7	9	13	8	10	nw.	U. S. Weather Bureau.
Steelville	Crawford	1,746	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Edwin Pumphrey.
Willow Springs	Howell	1,300	16	.....	.....	.....	.....	.....	.....	.....	1.98	− 0.60	0.80	.....	5	18	0	13	w.	John Lovewell.
Kentucky.																				
Blandville	Ballard	445	29	31.5	− 5.0	61	4	3	30	27	4.35	+ 0.39	2.04	0.7	9	6	10	15	nw.	E. W. Horr.
Lynnville	Graves	.....	8	32.4	.....	71	4	4	30	28	4.09	.....	1.00	1.0	7	12	5	14	sw.	Wm. Scherffius.
Tennessee.																				
Arlington	Shelby	.....	28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. T. B. Etheridge.
Bolivar	Hardeman	450	25	33.8[b]	− 6.7	72[b]	4	10[b]	20†	35[b]	4.77[b]	+ 0.37	1.55[b]	3.0[b]	8[b]	16[b]	0[b]	15[b]	n.	Miss M. A. Smith.
Brownsville	Haywood	361	27	34.8	.....	72	4	9	20	42	5.39	.....	2.00	1.7	9	16	5	10	n.	Miss Hattie N. Moss
Covington	Tipton	311	27	34.5	− 6.7	70	4	11	20	33	3.71	− 1.24	1.92	2.0	6	17	1	13	s.	J. S. Ruffin.
Dyersburg	Dyer	310	27	33.7	− 7.0	74	4	10	30	35	3.45	.....	1.00	T.	5	15	1	15	n.	M. A. Sinclair.
Jackson	Madison	450	16	36.8	− 4.7	75	4	8	20	33	4.87	− 0.23	1.39	3.0	9	10	6	15	sw.	T. H. Hartmus.
Kenton	Obion	.....	8	34.5	.....	74	4	7	30	30	4.21	.....	1.16	0.5	10	11	6	14	s.	G. S. Martin.
Memphis	Shelby	409	39	36.2	− 7.3	74	4	16	9	27	5.73	+ 1.35	3.04	3.2	8	13	6	12	nw.	U. S. Weather Bureau.
Milan	Gibson	440	27	35.2[a]	.....	63[a]	3†	9[a]	29	29[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	O. F. Cantwell.
Trenton	....do	345	28	34.6	− 5.7	75	4	8	30	33	4.22	− 0.35	1.32	T.	7	14	6	11	nw.	Prof. F. L. Dennison.
Union City	Obion	360	14	34.4	− 5.6	73	4	7	30	26	4.15	− 0.15	1.10	T.	8	8	16	7	nw.	Earl A. Kinzey.
Arkansas.																				
Alicia	Lawrence	.....	5	35.9[b]	.....	77[d]	4	10	29	40[d]	3.10	.....	1.90	2.0	4	20	6	5	s.	McCullough & Guelck.
Amity	Clark	250	17	37.6	− 5.5	77	4	14	21	38	8.18	+ 4.31	3.54	6.5	10	15	3	13	ne.	Prof. S. M. Samson.
Arkadelphia (near)	....do	250	2	39.2	.....	75	4	12	20	36	7.89	.....	2.34	.....	11	17	4	10	ne.	J. A. Ross.
Arkansas City	Desha	145	26	.....	.....	.....	.....	.....	.....	.....	7.88	+ 3.59	2.04	8.0	11	.....	.....	.....	.....	W. C. Blundell.
Batesville (1)	Independence	271	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John Q. Wolf.
Batesville (2)	....do	271	5	.....	.....	.....	.....	.....	.....	.....	4.19	+ 0.49	1.18	1.0	11	.....	.....	.....	.....	Miss Lelia I. Feter
Bee Branch	Van Buren	.....	17	36.2[b]	− 7.1	77	4	9[d]	20	40[d]	5.10	+ 1.62	2.00	5.5	9	14	4	13	.....	J. E. Scanlan.
Benton	Saline	283	2	36.7[a]	.....	76[a]	4	10[a]	20	39[a]	.....	.....	.....	2.0	.....	.....	.....	.....	nw.	J. E. Evans.
Bentonville	Benton	1,303	4	29.4	− 8.1	69	4	4	8	37	2.76	0.00	1.50	3.1	10	18	6	7	nw.	U. S. Weather Bureau.
Bergman	Boone	1,324	13	28.6	− 8.9	64	3†	1	9	46	2.18	− 0.34	0.66	3.0	6	16	5	10	nw.	John T. Maxey.
Black Rock	Lawrence	.....	5	.....	.....	.....	.....	.....	.....	.....	3.64	.....	1.24	0.0	10	.....	.....	.....	.....	S. J. Howe.
Brinkley	Monroe	226	23	35.4	− 8.9	78	4	9	20†	44	6.08	+ 1.52	2.41	3.2	10	18	2	11	n.	H. L. D. Whitson.

TABLE 1.—*Climatological data for December, 1909. District No. 7*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.					Sky.				Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	
Arkansas—Cont'd.																				
Calico Rock	Izard	361	5	.....	.....	.....	.....	.....	.....	.....	2.88	.....	0.88	3.0	7	.....	.....	.....	.....	W. H. Stoner.
Camden	Ouachita	158	24	40.1	− 5.7	76	4	6	20	37	8.60	+ 4.06	3.34	5.2	10	15	4	12	sw.	R. H. Quarterman.
Centerpoint	Howard	.....	9	38.8	.....	76	4	10	20	40	7.67	.....	3.55	4.0	6	17	1	13	nw.	J. M. Huddleston.
Clarendon	Monroe	171	5	.....	.....	.....	.....	.....	.....	.....	6.63	.....	2.25	1.5	12	.....	.....	.....	.....	Mrs. B. E. Bishop.
Conway	Faulkner	309	26	35.7	− 6.7	77	4	10	20	38	6.58	+ 2.68	2.13	3.7	11	13	10	8	nw.	G. H. Burr.
Corning	Clay	293	17	34.0	− 3.8	77	4	10	30	36	4.09	+ 0.55	1.64	0.6	7	9	10	12	s.	Jacob Brobst.
Dardanelle	Yell	330	23	33.8	.....	75	4	11	19†	37	4.44	+ 1.31	1.06	2.0	8	18	0	13	s.	A. Bernard.
Dodd City	Marion	1,175	28	31.7[b]	− 7.8	70[b]	4	6[b]	9	42[b]	3.74	+ 0.74	0.80	T.	6	.....	.....	.....	n.	Neal Dodd.
Dutton	Madison	.....	8	29.9	.....	66	4	4	20	38	3.32	.....	2.01	2.9	5	13	9	9	nw.	T. S. Williamson.
Earl	Crittenden	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. J. Moss.
Eldorado	Union	265	5	38.4	.....	77	4	11	20	45	8.76	.....	3.47	5.0	11	15	1	15	e.	Fred A. Babb.
England	Lonoke	.....	3	38.2[a]	.....	76[a]	2	7[a]	20	32[b]	5.16	.....	2.05	2.5	8	12	8	11	nw.	J. C. Chenault.
Eureka Springs	Carroll	.....	8	31.8	.....	72	4†	4	8†	52	2.40	.....	1.70	3.0	3	4	21	6	nw.	Jas. T. Pomeroy.
Fayetteville	Washington	1,451	20	33.1	− 6.3	77	1	5	9	50	3.91	+ 1.10	1.80	1.5	7	15	8	8	sw.	University of Arkansas.
Fort Smith	Sebastian	481	27	34.0	− 7.7	72	4	13	9	35	2.18	− 0.70	1.26	1.4	8	13	6	12	e.	U. S. Weather Bureau.
Fulton	Hempstead	264	5	.....	.....	.....	.....	.....	.....	.....	6.60	.....	1.80	9.0	10	.....	.....	.....	.....	B. C. Logan.
Hardy	Sharp	643	11	32.3	− 6.3	74	4	7	9	39	3.78	+ 0.49	1.20	2.5	9	8	10	13	nw.	C. A. Caywood.
Helena (1)	Phillipi	182	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Robert Kyle.
Helena (2)	....do.....	182	8	37.2	− 7.9	78	4	12	21	40	7.36	+ 2.32	3.22	4.0	13	15	1	15	nw.	B. F. Modisett.
Hot Springs	Garland	600	3	35.6	.....	80	4	5	20	41	7.19	.....	2.94	2.8	9	22	0	9	w.	Hot Springs Water Co.
Huttig	Union	85	2	40.9[d]	.....	77[d]	4	14[d]	21	38[d]	7.08	.....	1.53	3.0	11	.....	.....	.....	.....	C. A. Berry.
Jonesboro	Craighead	345	14	33.4	− 7.6	74	4	10	8†	33	5.82	+ 1.26	2.80	1.0	9	8	14	9	w.	Benedictine Sisters.
Junction	Union	.....	16	38.0	− 7.6	70	4	12	21	34	4.28	+ 0.25	1.92	2.5	5	16	1	14	n.	J. A. Lowderback.
Lacrosse	Izard	.....	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. E. Kennard.
Lake Farm	Jefferson	195	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. H. Gillespie.
Lewisville	Lafayette	262	6	40.6[a]	.....	76[a]	4	8[a]	20	36[a]	9.35	.....	3.17	3.5	11	.....	.....	.....	.....	F. W. Youmans.
Little Rock	Pulaski	357	30	37.1	− 6.4	75	4	16	9	42	5.31	+ 1.07	2.08	2.5	11	15	4	12	nw.	U. S. Weather Bureau.
Lutherville	Johnson	775	12	33.4	− 7.5	72	4	9	20	44	4.28	+ 0.66	1.50	5.0	9	13	9	9	sw.	Herman Hentschel.
McNeil	Columbia	321	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	L. A. Smith.
Malvern	Hot Spring	277	22	39.1[c]	− 5.0	77[c]	4	10[d]	20	33[d]	7.52	+ 3.60	2.43	2.5	10	12	4	15	ne.	Miss L. C. Smith.
Mammoth Spring	Fulton	.....	5	31.5	.....	74	4	8	9†	37	3.61	.....	1.47	1.5	7	8	17	6	.....	F. Wallick.
Marked Tree	Poinsett	.....	5	.....	.....	.....	.....	.....	.....	.....	2.06	.....	0.80	2.5	6	.....	.....	.....	.....	L. Smith.
Mena	Polk	1,100	23	35.7	− 7.0	70	4	8	20	43	4.77	+ 0.88	1.50	6.6	9	17	3	11	ne.	D. H. Hopkins.
Mosaville	Newton	.....	16	30.1	− 6.6	64	4†	6	8†	45	3.61	− 0.09	1.57	T.	3	14	3	14	s.	Theo. Ober.
Mount Nebo	Yell	1,750	19	31.4[e]	.....	70	4	4[e]	20	45[e]	3.25	− 1.29	1.20	10.0	8	16	7	8	e.	T. G. Church.
Newport (1)	Jackson	231	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. A. B. Hillhouse.
Newport (2)	....do.....	231	....	34.2	− 7.3	79	4	12	9†	44	4.69	+ 1.12	1.20	1.5	10	17	2	12	se.	A. V. Hughes
Ozark	Franklin	377	18	34.8	− 7.7	73	4	13	9†	31	2.83	− 0.60	1.10	1.9	6	18	10	3	e.	R. M. Adams.
Pine Bluff	Jefferson	215	21	38.4	− 6.9	77	4	10	20	39	7.00	+ 2.29	2.75	4.1	11	19	1	11	w.	J. H. Hudson.
Pocahontas	Randolph	.....	17	35.6	− 2.7	82	4	9	20	40	4.07	+ 0.54	1.84	1.0	8	11	11	9	.....	Benedictine Sisters.
Pond	Benton	1,250	12	30.6	− 6.9	69	4	3	8†	39	3.61	.....	1.17	2.0	6	6	17	8	sw.	A. F. Stevens.
Portland	Ashley	122	....	39.0	.....	79	4	14	21†	44	5.88	.....	1.35	4.2	11	12	3	16	nw.	T. A. Corson.
Prescott	Nevada	327	21	37.6	− 6.0	76	4	4	20	45	7.90	+ 4.22	1.90	10.0	10	16	6	9	sw.	A. M. Ellsworth.
Princeton	Dallas	287	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Capt. D. R. Feaster.
Rogers	Benton	1,385	18	31.6	− 6.4	69	4	4	8†	47	1.93	− 0.19	1.75	2.0	5	10	11	10	n.	Carl A. Stark.
Russellville	Pope	348	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. F. Hodgins.
Spielerville	Logan	1,050	12	35.4	− 6.1	75	4	11	20	34	2.45	− 0.95	1.06	T.	5	16	6	9	w.	New Subiaco Abbey.
Springbank	Miller	182	2	.....	.....	.....	.....	.....	.....	.....	7.90	.....	2.00	3.0	9	.....	.....	.....	.....	G. Field.
Stuttgart	Arkansas	495	22	37.4	− 6.8	75	4	6	20	35	6.24	+ 1.68	1.76	2.6	11	15	6	10	n.	H. A. Buerkle.
Texarkana	Miller	332	25	38.4	− 8.9	76	4	13	20	37	7.50	+ 4.87	1.74	4.5	9	14	3	14	n.	W. B. Weeks.
Warren	Bradley	304	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. J. Savage.
Whitecliffs	Little River	206	5	.....	.....	.....	.....	.....	.....	.....	7.36	.....	1.95	4.3	10	.....	.....	.....	.....	John E. Payton.
Wiggs	Garland	.....	16	36.0	− 5.9	75	4	4	20	40	7.10	+ 3.00	3.12	3.5	9	14	7	10	nw.	S. D. Jester.
Wynne	Cross	.....	1	33.7	.....	75	4	4	20	38	5.35	.....	1.55	3.1	12	14	1	16	n.	R. R. Poole.
Mississippi.																				
Anguilla	Sharkey	.....	1	41.6	.....	78	4	12	21	32	5.74	.....	1.30	2.0	10	14	2	15	n.	E. W. Cook.
Austin	Tunica	200	13	37.2	− 6.6	77	4	10	20	34	7.45	+ 1.80	1.91	3.0	9	18	3	10	nw.	H. J. Irvine.
Batesville	Panola	230	22	35.4[b]	− 9.0	.....	.....	10	21	33[d]	7.54	+ 2.85	2.20	3.0	8	16	2	13	e.	J. M. Cox.
Byhalia	Marshall	390	.....	.....	.....	.....	.....	.....	.....	.....	6.33	.....	1.45	2.5	9	7	15	9	ne.	Tallahatchie Dng. Com.
Canton	Madison	228	19	42.4	− 6.0	82	4	16	30	43	3.94	− 0.93	1.46	0.0	12	12	11	8	nw.	Dr. G. W. Smith-Vaniz.
Clarksdale	Coahoma	177	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. F. Durham.
Coffeeville	Yalobusha	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.88	.....	1.24	8.0	10	17	5	9	n.	Tallahatchie Dng. Com.
Corinth	Alcorn	430	21	34.9	− 7.8	73	4	12	21†	32	5.01	− 0.47	2.05	3.0	9	16	2	13	se.	Milton A. Chandler.
Crenshaw	Panola	187	.....	.....	.....	.....	.....	.....	.....	.....	7.77	.....	2.22	3.5	12	15	6	10	ne.	Tallahatchie Dng. Com.
Denmark	Lafayette	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.26	.....	1.50	6.0	11	.....	.....	.....	.....	Do.
Duck Hill	Montgomery	.....	10	39.8[b]	.....	78[b]	6	11[b]	22	44[b]	5.19	.....	1.80	0.6	...	15	5	9	s.	W. H. Eskridge.
Edwards	Hinds	222	22	43.4	− 6.1	81	4	15	30	40	4.07	− 0.91	1.18	0.0	10	14	12	5	n.	C. R. Knox.
Enid	Tallahatchie	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7	9	15	ne.	Tallahatchie Dng. Com
Fayette	Jefferson	282	8	43.3	− 6.9	79	4	12	21†	42	3.61	− 1.36	1.07	0.0	6	16	7	8	ne.	T. L. Darden.
Greenville	Washington	126	22	39.2	− 7.5	80	4	15	21†	44	6.49	+ 1.96	1.30	6.0	11	16	0	15	se.	F. L. Harbison.
Greenwood	Le Flore	140	9	38.2	− 7.0	78	4	15	21†	43	6.18	+ 0.39	1.40	2.5	12	12	5	14	nw.	J. H. Stephen.
Grenada	Grenada	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.97	.....	1.03	3.5	7	17	7	7	nw.	Tallahatchie Dng. Com.
Hernando	De Soto	391	21	36.7	− 6.2	75	4	12	20	30	7.30	.....	3.45	4.0	8	15	2	14	n.	Miss Josephine G. Jones.
Hickory Flat	Benton	435	.....	.....	.....	.....	.....	.....	.....	.....	5.73	.....	1.32	4.0	11	14	5	12	n.	Tallahatchie Dng. Com.
Holly Springs	Marshall	600	22	34.3	− 8.9	73	4	13	30	28	6.95	+ 1.82	2.45	3.5	11	16	2	13	se.	L. B. Mosby.
Kosciusko	Attala	430	19	38.4	− 9.0	75	4	14	30	37	3.61	− 0.71	0.92	1.5	11	17	4	10	nw.	E. L. Lucas.
Lake Cormorant	De Soto	206	....	.....	.....	.....	.....	.....	.....	.....	7.15	.....	2.16	2.4	11	14	8	9	nw.	Tallahatchie Dng. Com.
Lula	Coahoma	182	....	.....	.....	.....	.....	.....	.....	.....	8.20	.....	2.97	2.0	8	11	9	11	.....	Do.
Malone	Marshall	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.71	.....	1.76	3.0	6	5	11	15	n.	Do.
Marks	Quitman	163	.....	.....	.....	.....	.....	.....	.....	.....	8.27	.....	2.65	6.0	11	.....	.....	.....	.....	Do.
Natchez	Adams	206	21	44.6	− 6.0	80	4	22	21	42	5.10	− 0.31	1.73	0.2	11	11	7	13	n.	J. C. Weir.
New Albany	Union	398	.....	.....	.....	.....	.....	.....	.....	.....	4.60	.....	1.35	5.0	11	12	9	10	n.	Tallahatchie Dng. Com.
Pontotoc	Pontotoc	475	20	37.4	− 7.9	74	4	11	21	32	.....	.....	.....	6.0	...	12	11	8	nw	Dr. C. W. Bolton.
Port Gibson	Claiborne	116	21	41.7	− 7.1	79	4	16	30	44	4.46	− 0.61	1.62	0.0	11	16	3	12	e.	H. H. Crisler.
Ripley	Tippah	.....	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	S. W. Pegram.
Rosedale	Bolivar	143	1	37.8	.....	80	4	12	20†	43	7.30	.....	1.90	5.5	9	14	2	15	sw.	W. A. Shelby.
Senatobia	Tate	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.47	.....	1.92	3.5	9	15	2	14	nw.	Tallahatchie Dng. Com.
Shoccoe	Madison	.....	6	42.7	.....	78	4	13	30	40	4.39	.....	1.37	0.5	8	18	2	11	nw.	J. C. Pitchford.
Suffolk	Franklin	.....	8	46.0	.....	78	4	17	30	36	4.16	.....	1.05	0.0	11	12	6	13	nw.	Prof. Geo. H. Kent.
Swan Lake	Tallahatchie	148	8	.....	.....	.....	.....	.....	.....	.....	7.25	.....	1.59	6.0	11	.....	.....	.....	.....	B. F. Saunders.
Tuchula	Holmes	130	4	41.4	.....	84	4	9	30	39	4.89	.....	1.40	5.4	9	8	15	8	n.	Dr. M. P. Winkler.
University	La Fayette	502	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Prof. J. W. Johnson.
Utica	Hinds	287	5	43.4	.....	80	4	16	30	40	3.71	.....	1.17	0.0	7	17	5	9	n.	Dr. J. B. Dudley.
Vicksburg	Warren	247	38	43.5	− 5.9	78	4	21	30	30	4.18	− 0.84	1.42	0.0	9	10	7	14	n.	U. S. Weather Bureau.
Water Valley	Yalobusha	300	20	37.4	− 8.5	77	4	11	21	35	6.63	+ 1.77	1.40	5.0	9	18	3	10	e.	Miss Lula Erikson.
Woodville	Wilkinson	560	16	46.3	− 4.6	78	4	20	21	35	5.18	− 0.29	1.38	0.0	8	19	8	4	n.	James E. Lee.
Yazoo City	Yazoo	116	15	40.8	− 6.5	79	2†	16	30	40	2.96	− 1.40	0.94	1.0	9	16	1	14	n.	H. S. Orr.

TABLE 1.—*Climatological data for December, 1909. District No. 7*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Louisiana.																				
Abbeville	Vermilion	18	22	47.3	− 6.5	78	3	25	30	40	6.72	+ 2.13	2.57	T.	10	14	1	16	n.	Hon. C. J. Edwards.
Alexandria	Rapides	77	21	43.6	− 5.9	80	31†	21	30	46	5.59	+ 0.59	2.15	0.0	7	11	5	15	e.	Miss Nellie Graham.
Amite	Tangipahoa	130	21	48.2	− 2.9	77	4	19	30	47	9.09	+ 4.21	1.85	0.0	10	2	26	3	n.	Miss Lula M. Wentz.
Baton Rouge	E. Baton Rouge	35	20	49.2	− 2.7	79	4	24	30	28	7.73	+ 2.92	2.28	0.0	11	16	2	13	nw.	Elmo M. Bott.
Burnside‡	Ascension	20	9	49.8[c]	− 3.4	79[c]	4	24[c]	30	42[c]	8.88[c]	.....	2.80[c]	0.0	11[c]	.....	.....	.....	n.	C. S. McFarland.
Burrwood	Plaquemines	1	19	56.2	− 2.5	78	4	34	30	27	8.97	+ 4.76	2.67	0.0	15	.....	.....	.....	n.	Graham Myers.
Calhoun	Ouachita	180	17	42.0	− 4.9	77	31†	13	21	41	4.31	− 0.40	1.82	3.0	7	14	5	12	ne.	N. L. Exp. Station.
Cameron	Cameron	6	14	53.0[j]	− 1.9	76[j]	2	29[j]	12	35[j]	.....	.....	.....	.....	.....	.....	.....	.....	ne.	State Biologic Station.
Cheneyville	Rapides	67	22	47.0	− 3.1	81	31†	22	21	41	5.03	+ 0.29	2.00	0.0	7	19	0	12	n.	Walter I. Tanner.
Clinton	East Feliciana	113	20	47.5	− 3.9	78	4	21	30	37	5.02	+ 0.24	1.62	0.0	8	8	9	14	n.	John A. White, jr.
Collinston	Morehouse	65	7	41.8[c]	.....	80[d]	3	13[b]	20	43[d]	4.10	.....	1.53	T.	5	20	2	9	.....	W. A. Page.
Covington	St. Tammany	39	17	47.5	− 3.2	79	4	21	30†	42	9.53	+ 4.85	2.66	0.0	12	13	5	13	n.	C. Champagne.
Dodson	Winn	.....	1	43.7	.....	78	31†	17	21	38	6.10	.....	1.87	1.5	7	15	6	10	n.	J. P. Lucas.
Donaldsonville	Ascension	33	19	49.3[a]	− 5.2	82[a]	1	26	30	38[a]	8.20	+ 3.58	2.25	0.0	11	22	2	7	e.	John F. Park.
Farmerville	Union	177	19	37.4[i]	− 9.5	76[i]	3†	14[i]	19†	36[i]	6.83	+ 1.91	2.62	7.0	8	.....	.....	.....	n.	W. P. Chandler.
Ferriday	Concordia	.....	3	45.0	.....	80	4	17	21†	35	4.10	.....	1.68	0.0	7	21	1	9	n.	R. Z. Slater.
Franklin	St. Mary	10	17	49.6	− 3.8	82	4	25	30	41	6.63	+ 2.13	2.50	0.0	14	12	1	18	ne.	Miss Josephine M. Bonney
Grand Cane	De Soto	302	3	41.8	.....	79	2	18	21	48	4.89	.....	2.20	0.2	5	11	4	16	w.	J. J. Paxton.
Grand Coteau	St. Landry	93	17	48.7	− 5.1	81	4	23	30	37	6.28	+ 1.43	1.58	0.0	9	16	9	6	ne.	St. Charles College.
Hammond	Tangipahoa	44	10	48.5	− 3.2	78	5	19	30	40	4.89	+ 0.29	1.56	0.0	6	17	7	7	nw.	C. C. Carr.
Houma	Terrebonne	.....	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. M. Haggerty.
Jennings	Calcasieu	30	11	47.4	− 4.6	80	4	26	21†	39	7.84	+ 2.75	2.52	0.0	8	10	15	6	n.	J. F. Buch.
Lafayette	Lafayette	36	22	47.1	− 5.6	89	4	23	30	44	6.72	+ 2.30	1.87	0.0	7	12	7	12	n.	J. J. Davidson.
Lake Charles	Calcasieu	22	21	47.3	− 5.9	81	3	24	21†	39	6.39	+ 2.48	2.[illegible]	0.0	7	15	2	14	n.	A. O. Boudreaux.
Lakeside	Cameron	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	L. J. Nunemacher.
Lawrence	Plaquemines	6	19	48.4	− 5.6	80	1	26	30	40	6.68	+ 2.31	2.25	0.0	11	18	2	11	n.	H. C. Warmoth.
Liberty Hill	Bienville	.....	22	43.4[a]	− 6.2	81[a]	3	14[a]	21	48[a]	5.73	+ 0.79	2.56	T.	6	15	4	12	n.	Dr. E. A. Crawford.
Logansport	De Soto	192	4	.....	.....	.....	.....	.....	.....	.....	7.26	.....	2.83	0.0	9	17	3	11	n.	Mrs. Bettie M. Dennis.
Melville	St. Landry	45	22	46.0	− 6.2	80	31†	22	30†	44	6.03	+ 1.28	2.08	0.0	8	13	5	13	n.	Chas. B. McNeill.
Minden	Webster	194	21	38.8	− 8.3	78	31†	10	20†	46	7.93	+ 2.88	3.20	6.0	10	13	9	9	w.	Miss Ethel Fort.
Monroe	Ouachita	82	22	42.0	− 7.9	80	31†	19	21†	46	4.61	+ 0.13	1.60	0.5	8	15	6	10	se.	Eugene Stannard.
Morgan City	St. Mary	14	4	.....	.....	.....	.....	.....	.....	.....	4.99	.....	2.43	0.0	.....	18	5	8	n.	Virgil E. Kinsey.
Newellton	Tensas	.....	2	43.2	.....	78	4	18	30	38	4.10	.....	1.35	T.	6	16	9	6	n.	John D. Fultz.
New Iberia	Iberia	15	19	49.8	− 5.0	78	4	25	30	31	5.93	+ 1.58	2.00	0.0	11	13	10	8	n.	Mrs. Jno. A. Gebert.
New Orleans (1)	Orleans	15	35	50.4	− 4.0	77	1	26	30	32	7.40	+ 2.94	3.69	0.0	15	13	4	14	n.	U. S. Weather Bureau.
New Orleans (2)	....do	18	22	52.0	− 1.8	82	1†	26	30	38	8.48	+ 3.33	3.25	0.0	11	6	6	19	n.	Sugar Exp. Station.
New Orleans (3)	....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.26	.....	2.54	0.0	15	.....	.....	.....	.....	Sewerage and Water Board, New Orleans Drainage Commission.
New Orleans (4)	....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.97	.....	2.61	0.0	14	.....	.....	.....	.....	
New Orleans (5)	....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.24	.....	3.04	0.0	15	.....	.....	.....	.....	
New Orleans (6)	....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.25	.....	3.05	0.0	15	.....	.....	.....	.....	
New Orleans (7)	....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.26	.....	2.78	0.0	15	.....	.....	.....	.....	
New Orleans (8)	....do	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.67	.....	2.69	0.0	15	.....	.....	.....	.....	
Opelousas	St. Landry	83	18	46.6	− 4.5	84	4	22	30	41	7.77	+ 2.81	3.40	0.0	10	10	0	21	n.	Andrew Moresi.
Pearl River	St. Tammany	.....	3	.....	.....	.....	.....	.....	.....	.....	8.64	.....	3.00	0.0	13	18	2	11	n.	George F. Bancks.
Plain Dealing	Bossier	268	17	41.2	− 5.3	76	4	10	20	37	10.09	+ 4.68	2.57	3.0	11	13	6	12	ne.	Leon Sanders.
Rayne	Acadia	44	18	48.2	− 4.8	79	4	25	26†	35	7.05	+ 2.32	2.00	0.0	7	13	2	16	n.	A. P. McNeil.
Reserve	St. John Baptist	.....	8	.....	.....	.....	.....	.....	.....	.....	7.34	.....	2.60	.....	10	6	15	10	.....	Leon Godchaux Co.
Robeline	Natchitoches	147	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Miss Ruby McCook.
Ruston	Lincoln	312	13	43.2	− 4.8	80	4	16	20†	36	7.05	+ 2.22	2.00	0.0	7	17	4	10	n.	J. C. H. McKinney.
Schriever	Terrebonne	17	18	.....	.....	.....	.....	.....	.....	.....	4.98	+ 0.81	1.90	0.0	6	17	6	8	e.	Charles V. Moore.
Shreveport	Caddo	249	37	42.2	− 6.7	76	4	20	20	30	6.38	+ 2.01	3.16	1.6	11	14	6	11	nw.	U. S. Weather Bureau.
Simmesport	Avoyelles	.....	4	.....	.....	.....	.....	.....	.....	.....	4.88	.....	1.76	0.0	9	8	4	19	n.	W. P. Denny.
Southern Univ. Farm	Jefferson	.....	14	.....	.....	.....	.....	.....	.....	.....	6.21	+ 0.11	3.10	0.0	10	14	7	10	ne.	F. L. St. Martin.
St. Francisville	West Feliciana	115	5	44.5[a]	.....	78[a]	4	22	30	42[a]	5.30	.....	1.73	0.0	5	20	7	4	n.	L. P. Kilbourne.
Sugartown	Calcasieu	.....	17	48.4	− 3.3	78	1†	23	21	32	4.99	+ 0.57	2.30	0.0	6	6	19	6	.....	G. W. Richardson.
Tallulah	Madison	91	1	41.4	.....	80	4	12	30	45	5.51	.....	2.27	T.	5	13	6	12	.....	G. P. Blair.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2—*Daily precipitation for December, 1909. District No. 7, Lower Mississippi Valley.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Colorado.																																	
Blaine	Cimarron					.05									.20							.05											0.30
Buena Vista	Arkansas		.32	1.10							T.						T.	T.				.08	T.								.25	1.75
Calhan	Big Sandy	.10		.60								.10			T.		T.						T.		T.							0.80
Canon City	Arkansas			.33													.33	.20														0.86
Colorado Springs	Fountain			.22	.05										T.	T.	.03	.04														0.34
Cripple Creek	Oil Creek	.04	.30	.40			.02	T.								.27	.14															1.17
Cuchara Camps	Cucharas				.38						T.			.11		.05		.54						.19								1.27
Eads	Big Sandy			T.	.30																											0.30
Fairview	St. Charles																															
Florence	Arkansas					.90											.60															1.50
Garfield	Little Arkansas		.78	.49	.11	.10	T.	T.			T.	.06		T.			T.	.33					T.	.08	T.						.65	2.60
Glen Eyrie	Fountain		.10	.05												T.	.18															0.33
Hamps	Big Sandy	T.		.40	.04						T.	.03			.15		.07					.06			.03							0.78
Hermit Lake	Grape Creek		.63	.98	.35						.21							.35					.07	.03	.38							3.00
Hoehne (near)	Purgatoire	.10		T.	.13										.30		.20	T.														0.73
Holly	Arkansas	.05		T.	.06		T.								.05							T.										0.16
Lake Moraine	Fountain																															
Lamar	Arkansas			.10	.08		T.		T.	T.		T.			.15										.05							0.38
Las Animas	....do				.16										.23																	0.39
La Veta Pass	Cucharas		.25	.13	.10									.16			.15	.85														1.64
Leadville	Arkansas	.08	.44	.24	.10	.06	T.	.04	T.		.14	.04		.12	.02		.04	.05			T.		.06	.03	.12		.04	.02			.10	1.74
Limon (near)	Big Sandy			.20								T.			.04		T.					T.										0.24
Marshall Pass	Arkansas		.38	.22							.19				.18										T.				.35		.17	1.49
North Lake	Purgatoire		*	1.47	.18										.05		*	.50														2.20
Pueblo	Arkansas		.02	.14	.07			T.	T.		T.						.36	.04			.02	.01	T.		.06							0.72
Rockyford (near)	....do														.05		.09															0.14
Saint Elmo	Chalk Creek		.90	.40		.27	T.				.18						T.	.16					.06	.15	T.						.42	2.54
Salida	Arkansas			.84	.73													.02														1.59
Santa Clara	Cucharas		T.	.20	.18		.03				T.				.10		.07	.34							.04							0.96
Sheridan Lake	Arkansas	T.		.12	.05	.08						.01			T.								T.		T.							0.26
Stonewall	Purgatoire		T.	.04	.15										.04		.20	.16														0.59
Trinidad	....do			T.	.10										.12		.04	.08						T.								0.34
Victor	Oil Creek	T.	.02	.42							T.						23	.08				.06										0.81
Vilas	Cimarron				T.		T.				.40				.25		T.															0.65
Westcliffe	Grape Creek			.45							T.						*	.25							.04							0.74
Winfield	Clear Creek	T.	.51	.24	T.	.10		T.		T.	.05		T.	T.	T.		T.	.02		T.		T.	.03	.10	.06		T.	T.			.15	1.26
Wortman	Arkansas	.15	.72	.16	.12	T.	T.	.15	T.	T.	.44	T.	.16	T.	.07	T.	T.	T.	.20		T.	T.		.19	T.		.24	T.	T.	T.	.45	T.	3.05
New Mexico.																																	
Abbott	Canadian				*	.16								.16		.14																0.46
Albert	....do			T.	.14	T.						.14			.24			T.															0.52
Arch	Red																	* 1.00														1.00
Aurora	Canadian			.74	.17										.12			.20														1.23
Bell Ranch	....do			.02	.03										.02			.05	.03													0.15
Black Lake	....do			.49	.15		.10				.20							.17															1.11
Cabeza	....do			.02	.50								T.		.18			.20															0.90
Campana	....do			.04	.36	.35							.05						.03														0.86
Chacon	....do			.27	.48		.08										.26															1.09
Cimarron	....do			.05	.21										.56			.32															1.04
Clayton	....do			T.	T.		T.	T.						.20	.30		.20		T.														0.70
Cuervo	....do			T.	.01													.04	.01														0.06
Dawson	....do			.12	.20										.30		.22																0.84
Dorsey	....do																																
Elizabethtown	....do			.18	.24													.45					.20										1.07
Fort Union	....do				.11									T.	.24			.08															0.43
Hayden	....do			T.	.30			T.							.18			*	.20														0.68
Lake Alice	....do				.21									*	.98			.06															1.25
Logan	....do				T.													*	.28														0.28
Los Alamos	....do				.15													*	.09														0.24
Maxwell City	....do			.06	.15										.19																		0.40
Melrose	Red				T.													.10	.16	.08			T.	T.									0.34
Miami Ranch	Canadian				.25										.15			.45															0.85
Montoya	....do																	.38															0.38
Nara Visa	....do			T.	.30										.20			.50	T.														1.90
Raton	....do			.05	.15										1.15																		1.35
Rociada	....do		.10	.03	.28													.26	.20			.16											1.03
Roy	....do													.09			.24	.08															0.41
San Jon	....do			T.	.04		T.									T.		*	.25														0.29
Solano (1)	....do			T.	.16			T.				T.			.12			.14	T.														0.42
Solano (2)	....do			*	.13										.14			.24															0.51
Springer	....do														.36			.36															0.72
Taylor	....do		T.	.08	.16			T.						.24			.21	.14															0.83
Trementina	....do				.15										T.			.25	.05														0.45
Tucumcari (1)	....do			T.	.08													.12															0.20
Tucumcari (2)	....do				.07													.34															0.41
Vermejo Park	....do			T.											.18		T.	.27															0.45
Wagon Mound	....do				.20										.25			.26															0.71
Texas.																																	
Amarillo	Canadian			.01	.12		T.		T.						T.			.36	.05	T.			T.										0.54
Arthur	Red	1.70				.30	T.					.28							.20	T.					.30	T.							2.78
Bonham	....do				2.00	1.07				.10									.20				1.05										4.42
Canadian	Canadian																																
Channing	....do																																
Childress	Red									.10								.30	T.					T.									0.40
Chillicothe	....do				.04					.10		.07						.20	.10				.09										0.60
Clarendon	....do											T.						.40	.10		.15		T.	T.									0.65
Clarkesville	....do	.78				.77	T.					T.	.60						.22				.60	1.75									4.72
Claude	....do		T.	T.																.75													0.75
Dalhart‖	Canadian				.10											.05																	0.15
Denison	Red	.70				1.58				T.		.18	T.						.20	.04					.80									3.50
Henrietta‖	....do	T.	T.		T.				T.										.45	.03													0.48
Hereford	....do				T.													.20	.20														0.40
Higgins	Canadian																																
McLean	Red																																
Memphis	....do																		.20	.20													0.40
Miami	Canadian				T.													10														.34	0.44
Mobeetie‖	Red																	.10															0.10
Nazareth	....do																																
Ochiltree	Canadian																																0.00
Pampa	....do																																
Paris‖	Red	1.54				1.80		T.		T.		.30	T.						.25	.10				T.	1.60								5.59
Plemons	Canadian				.03			T.	T.						T.	.02		.20	T.		T.												0.25
Quanah	Red				01.				.05											.20													0.26
Sherman‖	....do																																
Sulphur Springs	....do	1.02				.77						.20	.28						.25	.18					1.80	.53						T.	5.03

TABLE 2.—*Daily precipitation for December, 1909. District No. 7*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Texas—Cont'd.																																	
Texline	Canadian				T.		T.		T.		.08							.20	.30				T.									0.58
Tulia	Red								.75									.15		.15					.25							1.30
Wichita Falls	....do																																
Kansas.																																	
Anthony	Arkansas			.01	.96		.21																	T.	.01				T.				1.19
Ashland	Cimarron	.03	T.	.02	.03		.05								T.									T.	.05								0.18
Burlington	Neosho	.30			1.19		.25				.04														.35								2.03
Chanute	....do				1.04		.45																		.45								1.94
Cimarron	Cimarron																																
Coldwater	....do			T.	T.		.06								T.			T.						T.									0.06
Columbus	Neosho	.60	T.		.75	.54	.30				.01		.02			T.								T.	.58								2.80
Coolidge	Arkansas				.10		.05								.05	.50																	0.70
Cottonwood Falls	Neosho	.37		.03	.88		.05	.02				T.				T.									.29								1.64
Council Grove	....do				.03	.05																			1.05								1.13
Cunningham	Arkansas			T.		T.	.15																		T.								0.15
Dodge City	....do	T.		.05	.41		.14								.02		.12	.02				.01		T.	.02			T.					0.79
Eldorado	....do	T.			1.01		.30																		.55								1.86
Ellinwood	....do	.06		.19	.29	T.	.22					T.				T.								T.	.29								1.05
Emporia	Neosho	.38	T.	.90		.25	T.					T.													.45								1.98
Eureka	Verdigris	.46	T.		1.05		.22				T.														.30	.03							2.06
Fall River	....do	.10		T.	.50		.20	.20			.40														.30								1.70
Fargo	Cimarron	.05		T.	*	.40	.05					.02			.05		.05																0.62
Fredonia	Verdigris	.34			.47		.20	.05																	.17								1.23
Garden City	Arkansas	.10	T.	.10	.30		T.					T.			.10			T.					T.	T.	.10								0.70
Great Bend	....do																																
Greensburg	....do	T.		.05	.08		.15								T.																		0.28
Grenola	Verdigris	.03			.20		.30				T.														.05								0.58
Howard	....do				.48		.20	.10																	.19								0.97
Hugoton	Cimarron	.04		.02	.40	.23	.09	.01				.01			.04			.01															0.85
Hutchinson	Arkansas	.08		.16	.18		.34																		.28								1.04
Independence	Verdigris				.72		.36					T.				T.									.37								1.45
Iola	Neosho	.18		T.	.96	T.	.26				.02	T.				T.								.05	.26								1.73
Jetmore	Arkansas				.50		.10								T.			.05			T.				T.								0.65
Kingman	....do			T.	.62		.29																		.10								1.01
La Crosse	....do			.19	.23		.11											T.							.13								0.66
Lakin	....do	T.		T.	.10	.06					T.	T.			.10										.06								0.32
Larned	....do			.07	.19		.20				T.													T.	.10								0.56
Lebo	Neosho	.28			.80		.20	T.			T.					T.									.45								1.73
Le Roy	....do	.68	.13		.48	.58		.19				.02				.01								.17	.08								2.34
Liberal	Cimarron			T.	.59		.10								.05			.10							T.								0.75
Macksville	Arkansas			.05	.19	T.	.08	T.				T.	T.	T.	T.		T.					T.		T.	.38								0.70
McPherson	....do	.20		.15	.40		.20	.10																	.33								1.38
Madison	Verdigris																																
Marion	Neosho	.06		.04	.43	.33		T.			T.				T.										.35	T.							1.21
Medicine Lodge	Arkansas				.41		.28																		.05								0.74
Medora	....do																																
Mt. Hope	....do	.09			.37			.50																	.11								1.07
Neosho Rapids	Neosho	.44			.38	.32		.08							T.										.30	.08							1.61
Ness City	Arkansas			.10	.10		.12																T.		.05								0.37
Newton	....do	.20		.02	.56	.01	.34																		.40								1.53
Norwich	....do	.14		T.	.83		.21	T.										T.						T.	.08								1.26
Oswego	Neosho				.93		.25																	*	.44								1.62
Pratt	Arkansas						.20								T.		T.								.05								0.25
Rome	....do				.56		.40																										0.96
Sedan	Verdigris	.18		.15		.20	.10																		.30								0.93
Toronto	....do				.30	.30		.50																	.10								1.20
Ulysses	Cimarron	.05					.40								.10	T.			T.						T.								0.55
Walnut	Neosho	.60			.50	.75	.20	T.				T.													.75								2.80
Wichita	Arkansas	T.		.01	.70	T.	.52				T.	T.				T.	T.							.01	.07								1.31
Winfield	....do	.05			.85		.60																	.16									1.66
Yates Center	Verdigris	.19		T.	.87	T.	.37	.05			T.														.34	T.							1.82
Oklahoma.																																	
Ada	Canadian																																
Alva	Arkansas				.10	T.	.02	T.																									0.12
Apache	Canadian	T.			.28	T.	.01					.25						.08	.13	.03				.04	.06	T.							0.88
Arapaho	Washita				.28		.01					.02						.27						T.	.15								0.73
Ardmore	Red	1.42			.07	1.03			T.			T.							.60						.70								3.82
Bartlesville	Arkansas				.55			.30				T.				T.									.43								1.28
Beaver	Canadian			T.	.20		.10								.10																		0.04
Blackburn	Arkansas	.13					.20	T.			.24														.46								1.03
Buffalo	Cimarron																																
Cache	Red				T.			T.				T.						.50	.10					.40									1.00
Calvin	Canadian	1.68			.08	1.30		.08				T.							.20						.38								3.72
Chandler	....do	1.30			T.			.05				T.	T.				T.							.25	T.								1.60
Chattanooga	Red				.08		T.	T.				.14						T.	.20					.18	.03								0.63
Chickasha	Washita																	.16						T.	.10								0.26
Cloud Chief	....do						T.											.23						T.									0.23
Dacoma	Cimarron				.10		.15																										0.25
Durant	Red	.90				1.75		T.				.29	T.						.19						.75									3.88
Eldorado	....do												.42							T.													0.42
Enid	Cimarron																																
Erick	Red				.20							T.												T.	T.								0.20
Fairland	Arkansas	.85		T.	.51	1.00		.10				T.													.60								3.06
Fort Gibson	....do	1.08			.45	2.14		.10				T.	T.					T.	T.						.32	.09							4.18
Frederick	Red																																
Gage	Canadian			T.	.25		T.																										0.25
Guthrie	Cimarron				.22			.50				.02					.10	.02	.03														0.89
Guymon	Canadian						.60						.45								.25									.30			1.60
Harrington	Red	.11			T.																												0.11
Hartshorne	Canadian	1.00			.53	1.30	.01					.05							2.00	.30				.01									5.20
Healdton	Red				.15	*			T.										.30					.20									0.65
Hennessey	Cimarron	.07			.20		.20																	T.	.30								0.77
Hobart	Red				T.		T.					T.		T.				.42	.14	T.				T.	T.								0.66
Holdenville	Canadian	2.00				1.00													.20						.60	.05							3.85
Hooker	....do	T.			.15		T.		T.			T.		T.	.02			.03						T.	T.								0.20
Hurley	....do				.45										T.																		0.45
Idabel	Red																																
Jefferson	Arkansas	.05			T.		.10										T.	T.						T.	.13								0.28
Kenton	Cimarron				.20	.20	T.		T.						.10		.10																0.60
Kingfisher	....do				.04		.12											.05						.15									0.36
McAlester	Canadian	.46			.31	1.05		T.											.26					.01	.09								2.18
McComb	....do				.50		T.				T.							.20						.12	.13								0.95
Mangum	Red			.20	T.							T.						T.	.30						T.								0.50
Marlow	Washita	.06			.02	.03		.09		T.									.15	.10					T.								0.45

TABLE 2.—*Daily precipitation for December, 1909. District No. 7*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oklahoma—Cont'd.																																	
Meeker	Canadian				.15		T.					T.																				0.15
Muskogee	Arkansas	.91			1.15	1.20			T.									T.						T.	.41							3.67
Mutual	Canadian			.30																												0.30
Neola	Washita					1.00	.05					.16						.25	.30	.11				T.								1.87
Newkirk	Arkansas	.15			.20														.20													0.55
Norman	Canadian						.20				.10													.18								0.48
Okeene	Cimarron				T.	.16	.05	T.				T.						.05						.04	.02							0.32
Oklahoma	Canadian				.01		.07				.01	.11						.04						.09	.01							0.34
Okmulgee	...do				1.09		.25	T.										T.						T.	T.							1.34
Pauls Valley	...do																															
Pawhuska	Arkansas	.08			.45	T.	.22											.05							.45							1.25
Perry	...do	.04			.65		.25					T.		T.				.10		T.	T.				.30							1.34
Ravia	Washita				.48	.48													.20	.04				.15	.56							1.91
Sac & Fox Agy	Canadian																															
Shawnee‖	...do																															
Snyder	Red				.05							.12						.10	.20					.05								0.52
Stillwater‖	Cimarron	.76			.04	.03		.16				.02	.07					.01							.30							1.39
Supply	Canadian				.10			T.										T.						T.								0.10
Tulsa (1)	Arkansas																															
Tulsa (2)‖	...do	1.48				.33		.10										.10							.32	.10						2.43
Vinita	...do	1.00			.60	.70	.50					T.													.30							3.10
Wagoner	...do																															
Waukomis	Cimarron				.10		.10					T.						.04						T.	.10							0.34
Weatherford‖	Canadian							.04				.04						.03														0.11
Webbers Falls	Arkansas	.88		.20	.68		.02																		.30	.24					T.	2.29
Whiteagle	...do	.05			.10		.16	.03										.02							.28							0.64
Woodward	Canadian				.13		.02																									0.15
Missouri.																																
Belle	Meramec	.40				1.75		.20						.40											.30	.30							3.35
Birchtree	Black	.40		.38	.60						.76			.14																			2.28
Cape Girardeau	Mississippi		.30	.20	.20	.48		T.				.30	.06	.20	T.		T.								.10	.10				.10		2.04
Caruthersville	...do	.12	T.		T.	.30	T.	.22			T.	2.20	.50	.36					T.							.29							3.99
Dean	Neosho	1.04			.91	1.23	T.	.30				.12													.33	.03							3.96
Doniphan	Black	.60			.65	.45	T.	.35			T.	1.35	.32	.30											.05								4.07
Farmington	Mississippi	.29		.10	.39	T.		.30			.25	.13	.16	.02												.40			.15				2.19
Gano	Meramec	.27			.22	.47		.32			.07	.20	.25	.27											.43	.08							2.58
Goodland	Black	.27			.12	.28	.20				T.	.97		.30												.30							2.44
Greenville	Mississippi	.62			.20	.42		.20			T.	1.22	.40	.30											.05								3.41
Ironton‖	...do		.40	T.	.05	.40	T.	.20	T.			.90	.20	.20			T.								.15	.35	T.			T.			2.85
Jackson	...do	.26	.14		.17		.38					1.08	.21	.40								.21			.35								3.20
Joplin	Neosho	.75			1.20	T.		.25		.15		T.	T.												.25								2.60
Koshkonong	Black	.55			.38	.57	.05				T.	1.00	.18	.10											.54								3.37
Lamar	Neosho	.79				1.30	T.	.39				T.	T.			T.									.22	T.							2.70
Marble Hill	Mississippi	.25				.95						1.10		.40										.20	.10						.75		2.75
Mt. Vernon	Neosho	.08			1.40	.90	.20	.30				.05													.04	T.							2.97
Neosho	...do	.99			.68	.95	.05	.30				.70													.47								4.14
Oakfield	Meramec	.18			.18	.26		.28			.06	.82	.11	.30	.02								T.		.30	.11		T.	.03				2.65
Olden	White	.75			.60	.60		.25				.80												.75									3.75
Sikeston	Mississippi	.30	.33	T.	.15	.58		.40			T.	1.70	.46	.25											.15								4.32
Springfield	White	.31			1.15	.06	.20	.11				.01	T.	T.		T.								.08	.31	.02							2.25
Steelville	Meramec	.12				.45		.21			.11	T.	.26	T.											.23	.04			.02				1.44
Willow Springs	White			.52								.80		.20												.06					.40		1.98
Kentucky.																																
Blandville	Mississippi	.22	.13		.24	.36	.36				T.	2.04	.22	.44		T.									.34			T.			T.		4.35
Lynnville	...do		.57	T.		.66		.45				.59	1.00	.50		T.		T.							.32				T.	T.			4.09
Tennessee.																																
Arlington‖	Mississippi																															
Bolivar‖	...do		.18			.38	.15	1.05				1.55	.48						.23							.35							4.77
Brownsville‖	...do		.19			.40	.20	.70			T.	2.00	.55	.60					.20					.55	T.							5.39
Covington‖	...do			.25		.25		.54				.05	1.92						.20													3.71
Dyersburg‖	...do					.85	T.	.35				.35	1.00	.90	T.				T.				T.									3.45
Jackson	...do	.34	T.			.75	T.	.85				.29	1.39	.35				.25							.55	.10							4.87
Kenton	...do	.23	.01	.02		.74	T.	.44				.60	1.16	.52											.45	.04							4.21
Memphis	...do	.32				.82	.39					2.84	.46	.04					.12	T.					.74								5.73
Milan‖	...do		.73			.40	.08	.94				.05	.80	.10																			
Trenton	...do	.15				.96		.56				.43	1.32	.30				T.							.50								4.22
Union City	...do	.25				.59		.36				1.10	.90	.45											.42	.08							4.15
Arkansas.																																
Alicia	White					.80	T.	T.				1.90	.20	.20												T.							3.10
Amity	Ouachita	1.47		T.		.65	.14	.15				3.54	.66	.08					.19	.05				T.	1.25						T.		8.18
Arkadelphia (near)	...do	1.00				1.00	.17	.19			.03	2.34	.47	.17					.19	.08					2.25								7.89
Arkansas City‖	Mississippi		1.30			.50		2.04				.30	1.10	.22					.20	.50	.10				.30	1.32							7.88
Batesville (1)	White																															
Batesville (2)‖	...do	.40	.06			.58		.40				1.18	.72	.32	.04					.01					.12	.36							4.19
Bee Branch	Arkansas	.95				.70	T.	.35				2.00	.20	.10				.10							.50	.20							5.10
Benton	Ouachita																															
Bentonville	Arkansas	.35		T.	1.50	.11	.16	.06			.03	.17						.02						.01	.35							2.76
Bergman	White	.59			.34	.66		.07						.30											.22							2.18
Black Rock‖	...do	.18	.18			.42	.36	.05				1.24	.69	.12											.01	.39							3.64
Brinkley‖	...do	T.	.71			.79		.16				.40	2.41	.14						.25	.02				.48	.72							6.08
Calico Rock‖	...do	.50				.50	.10					.88	.50	.20											.20	T.							2.88
Camden‖	Ouachita	.70				.74		.48				.62	3.34	.04					.30	.04	T.				.90	1.44							8.60
Centerpoint	Red	1.12			.45		.30		T.			3.55							.25						2.00						T.		7.67
Clarendon‖	White	.40	.55			.80		.60				.25	2.25	.17					.04	.10	.01				.36	1.10							6.63
Conway	Arkansas	.65				1.87	.40	.04			T.	2.13	.21	.17					.13	.02					.95						.01		6.58
Corning	White	.60			T.	.65	T.	.42				1.64	.20	.20					T.						.38								4.09
Dardanelle‖	Arkansas	.94				.52		.20				.90	1.06	.10	T.					T.					.40	.32							4.44
Dodd City	White	.83		*	*	2.11	T.				.50														.30	T.							3.74
Dutton	...do	.26				2.01	T.	.18				.86						T.	T.						T.	.01							3.32
Earl	St. Francis																															
Eldorado‖	Ouachita	.61				.84		.72		T.		.23	3.47	.13					.52	.40	.09				.75	1.00							8.76
England‖	Arkansas	.32	T.			.56						.52	2.05	.10					.08	.08					1.45								5.16
Eureka Springs	White			.40	1.70	T.	.30					T.	T.			T.								T.	T.								2.40
Fayetteville	...do	.50			.50	1.80		.50				.20													.38	.03							3.91
Fort Smith	Arkansas	.19			1.17	.09	.15	T.				.16						T.	.03					.24	.15							2.18
Fulton‖	Red	1.70				.20		.30				.80	1.80	.20					.30	.40	T.				.30	.60							6.60
Hardy	White	.45	.02			.73	.13	.47				1.20	.23	.12					T.						.43	T.							3.78
Helena (1) ‖	Mississippi																															
Helena (2) ‖	...do	.04	.34			.30	.24	.60				.22	3.22	.28					.26	.20	.06				.28	1.32							7.36
Hot Springs	Ouachita	1.30				.73	.15	.15			*	2.94	.32	.26					.28						1.06								7.19
Huttig	...do	.43				.82	.80	.70				.93	1.53	.08					.25	.05					1.48	.01							7.08
Jonesboro	White	.70				.68	.10	.40				2.80	.30	.20											.50	.14							5.82
Junction	Ouachita	T.				.28	.21				T.	1.62	T.						*	.25				T.	1.92								4.28
Lacrosse	White																															

TABLE 2.—*Daily precipitation for December, 1909. District No. 7*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Arkansas—Cont'd.																																	
Lake Farm	Arkansas																		*														
Lewisville	Red	1.36				.97	.38	.02			.12	3.17	.65						.64					.04	2.00							T.	9.35
Little Rock	Arkansas	.39				.99	.38				.02	2.06	.27	.04					.08	.05				.09	.94								5.31
Lutherville	do	1.50			.70		.10	.14			T.	1.20	.05	.10					.04						.45								4.28
McNeil	Ouachita																																
Malvern‖	Ouachita	1.00				.97		.37				.85	2.43	.27					.05	.23	T.			.55	.80								7.52
Mammoth Spring	White					1.30	.04	.15				1.47	.15											.18	.32								3.61
Marked Tree‖	St Francis	.45					T.					.80	.22	.46	.03			.10															2.06
Mena	Ouachita	.94			.05	1.10		.10			T.	1.50		.06					.22	.08			T.	.72							T.	4.77
Monsville	White	.90			T.	1.57	T.	T.				1.14	T.	T.				T.						T.	T.								3.61
Mount Nebo	Arkansas	1.20					.20	.20	.20			.75							.40		.20			.10									3.25
Newport (1)‖	White																																
Newport (2)‖	do	.50	.32			.35		.45				1.17	1.20	.10						.10				.20	.30								4.69
Ozark	Arkansas	.43			T.	1.10		.18			T.	.60	T.					T.	.12				T.	.40								2.83
Pine Bluff‖	do	.30	.10			.75		.42				.18	2.75	.01					.30	.05					.30	1.84							7.00
Pocahontas	White	.50				.50		.43				1.84	.20	.10											.32	.18							4.07
Pond	Arkansas	1.17			.90	1.01	T.	.16										T.							.34	.03							3.61
Portland‖	Ouachita	.05	1.35			.55	T.	1.30				.20	.18						.50	.20	.22				.08	1.25							5.88
Prescott‖	do	1.10				1.15		.40	T.			.75	1.90	.18					.22	.15					.90	1.15							7.90
Princeton	do																																
Rogers	Arkansas				1.05	.70	T.	.08										T.							.08	.02							1.93
Russellville‖	do																																
Spielerville	do	.07				1.06		T.				.82		T.					.10						.40								2.45
Springbank‖	Red	1.20				.92		.25				1.23	2.00	T.					.31	.21	T.				.93	.85							7.90
Stuggart	Arkansas	.49	.04			.80	.20	.19				1.76	.74	.02					.15	.12					1.73								6.24
Texarkana‖	Red	1.43				.70		.23		T.		.55	1.74	T.					.30	.15					1.30	1.10							7.50
Warren‖	Ouachita																																
Whitecliffs‖	Red	1.70				.43		.05				1.10	1.95	.05				.25	T.	.43					1.20	.20							7.36
Wiggs	Ouachita	1.37				.51	.37				T.	3.12	.36	.19					.08	.04				T.	1.06							T.	7.10
Wynne‖	St. Francis	.04	.79			.49		.43				.83	1.55	.07	.13					.20		.06			.06	.70							5.30
Mississippi.																																	
Anguilla	Yazoo	.72				.40	.60	.57				.10	1.15	.10					.50	.30					1.30								5.74
Austin	do	.48	T.			.63	.08	.59				1.91	1.85	.26					.25	T.					1.40								7.45
Batesville‖	do		.26			.70		1.82				.15	2.20	.28					.55							1.58							7.54
Byhalia	do	.11				.83	.09	1.04				1.45	1.37	.32					.15						.97	T.							6.33
Canton	Big Black	.01	.01			.20	.33	.19					.85	.10			.07		.30	.42					1.30	.16							3.94
Clarksdale	Yazoo																																
Coffeeville	do	.36	T.			.50	.40	.60				.62	.68	.18		T.			.18	.12					1.24	T.							4.88
Corinth‖	Mississippi		.28			.01	.43	1.62				T.	.90	.63	T.				.02	.08	T.				T.	1.04							5.01
Crenshaw	Yazoo	.39	.01			.73	.23	1.15			.01	2.22	.92	.25					.32	.04					1.50								7.77
Denmark	do	.15				.48	.29	.62				.52	1.35	.25					.40	.20					1.50	.50							6.26
Duck Hill	do	.48					1.05	.70				.07	.90	.13	T.				.04	.02					1.80								5.19
Edwards	Big Black	.18	.05			.20	.15					.10	1.25			.11			.55	.30					1.18								4.07
Enid	Yazoo																																
Fayette	Mississippi	.38				.12	T.						1.07						.40	.64					1.00								3.61
Greenville‖	Yazoo	T.	.86			.46		1.22				.14	1.18	.22					.18	.48	.04				.41	1.30							6.49
Greenwood‖	do		.55			.55	.14	1.40		T.		.04	1.06	.21					.10	.42	.10				.30	1.31							6.18
Grenada	do	1.03					.83					.34	.59			T.			.30	.05					.83		T.		T.				3.97
Hernando‖	do		.45			.70		.67				.08	3.45	.45	T.		T.	T.	T.	.40	T.					1.10							7.30
Hickory Flat	do	.22	.10			.36	.24	1.02				.57	1.30	.25					.30	.05					1.32	.24							5.73
Holly Springs‖	do		.15			.36	.20	1.43				.05	2.45	.42					.09	.25	.02					1.53							6.95
Kosciusko‖	Big Black		.04				.15	.81				.01	.81	.18		.07			.02		.15				.45	.92							3.61
Lake Comorant	Yazoo	.64				.94	.12	.37				2.16	1.16	.50					.14	.01					1.06	.24	.03						7.15
Lula	do	.59						.48	.76			2.97	1.35	.20					.20						1.65								8.20
Malone	do	.20					1.50					.45	1.76					.30							1.50								5.71
Marks	do	.50				.50	.18	1.02				2.65	.73	.23					.61	.10					1.72	.03							8.27
Natchez‖	Mississippi		.44			.35	.05	.32				.04	1.73	.10		.11			T.	.96	.16					.84							5.10
New Albany	Yazoo	.12	T.			.34	.23	.67				.12	.98	.26					.34	.10					1.33	.11							4.60
Pontotoc	do																																
Port Gibson‖	Mississippi		.27			.27		.08				.02	1.62	.19		.13			.07		.95				.03	.83							4.46
Ripley	Yazoo																																
Rosedale	do		.38			.40		1.60				.22	1.90	.20					.55						.15	1.90							7.30
Senatobia	do	.62				.62	.10	1.29			T.	1.92	1.07	.25					.32	T.					1.28	T.							7.47
Shoccoe	Big Black	T.	.38			.25	.40	.52				T.	1.09	T.		T.			.33	.05					1.37								4.39
Suffolk	Mississippi	.50				.22	.06					.04	1.05	.16	.14				.66	.46				T.	.58	.29							4.16
Swan Lake‖	Yazoo		.60			.45		1.40				.40	1.20	.70					.20	.30	.10				.40	1.50						T.	7.25
Tchula	do	T.				.50	.65	.60				.10	1.00	.10	T.				.44	.10					1.40								4.89
University	do	.34	T.			.31	.16					.91	.52		.01			T.	.40	.36					1.17								4.18
Utica	Mississippi	.14				T.	.13					.43	1.17	T.	T.				.20	.80					.84								3.71
Vicksburg	do	.34	T.			.31	.16					.91	.52		.01			T.	.40	.36					1.17								4.18
Water Valley	Yazoo	.30				.60	1.00					.68	.95	1.20					.35	.15					1.40								6.63
Woodville	do	1.28				.26		.18				T.	1.38		.04				.35	.67					1.02								5.18
Yazoo City‖	do		.26				.26	.72				T.	.94	.30		T.			.10		.10				.20	.08							2.96
Louisiana.																																	
Abbeville	Coast		.54			.17		.67				2.40	.17		.74				.17	.57	.52				.77								6.72
Alexandria‖	Red		1.30			.47		.19				2.15								.50	.21				.77								5.59
Amite‖	Coast		1.85			.09		1.50				1.75	.15		.40				1.00	.50	.40				1.45								9.09
Baton Rouge‖	do		.90			.17	.18	1.17				2.19	.09		.50				.07	.66	.55				1.25								7.73
Burnside	do	1.11	.25			.05	T.	1.95				2.80	T.		.50				.36	.71	.60				.60	.05							8.88
Burrwood	do	.68	1.00			.20	.78	.79				1.00	2.67		.04		.45	.14	.57	.25					.10	.10	.20						8.97
Calhoun	Ouachita	.58				.57	.16	.34				1.82							.56						.28								4.31
Cameron	Coast																																
Cheneyville‖	Red		1.60			.20						2.00			.10				.83	.20					.10								5.03
Clinton‖	Coast		1.30					.15				T.	1.52	.10		.11	T.		.72	.41					.71								5.02
Collinston	Ouachita	.67			.75		.95					1.53	.20					T.	T.														4.10
Covington‖	Coast		1.00			.61	.02	.97					2.66	.14		.20	.09		.46	.77	1.47				1.14								9.53
Dodson	Red	.48				.72	.50						1.87							.75					1.43								6.10
Donaldsonville‖	Coast		.85			.25		.85					2.25	.15		1.25	.25		.25	.35	1.40					.35							8.20
Farmerville‖	Ouachita	.73				.61	.65					2.62	.05							.70					.54	.93							6.83
Ferriday	do	.41				.27	.05						1.68						.28	.56					.85								4.10
Franklin‖	Coast		.40				.05	.39				.03	2.50	.18		.93	.24		.39	.28	.87	.04				.41			.01				6.63
Grand Canel‖	Red					1.30						.71	2.20							.02						.66							4.89
Grand Coteau	Coast	1.30				.70	T.	.55				T.	1.58		.03				.15	.55	.27				1.15								6.28
Hammond	do						.78						1.45			.40			.35	.35					1.56								4.89
Houma‖	do																																
Jennings‖	do		.99			.23		1.98				2.52			.13				.38	.23					1.88								7.84
Lafayette‖	do		.68					.93				1.97	.05						.65	.50					1.94								6.72
Lake Charles‖	do	1.12	.37			.22		.69				2.19							.81						.99								6.39
Lakeside	do																																
Lawrence‖	do		1.58			.15	.37	.71				2.25	.50						.18	.07	.26					.35			.26				6.68
Liberty Hill	Red					.70	.54				2.56								T.	.88				.20	.85								5.73
Logansport‖	Sabine		1.20					.03				.95	2.83						.31	.43	.09				.50	.92							7.26
Melville‖	Red		1.90			.15	T.					T.	2.00	.08		.12			.70	.16						.92							6.03
Minden‖	do	1.28				.78	T.	.36				.28	3.20	.05					T.	.53	.10				.45	.90							7.93

TABLE 2.—*Daily precipitation for December, 1909. District No. 7*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Louisiana—Cont'd.																																	
Monroe‖	Ouachita	.20					1.00		.70				.04	1.60	.01					1.02	T.					.04							4.61
Morgan City‖	Coast		.52					.31				2.43			*	.57		.17	*	*	.63					.34			.02				4.99
Newellton	Mississippi	.15				.75	T.					.10	1.35						.45	T.				1.30									4.10
New Iberia	Coast	.40				.10	T.	.67					2.00	.03	T.	.53		T.	.40	.65	.40				.70	.05							5.93
New Orleans (1)	do	1.08	.11		.13	.33	.01	.37				.60	3.17			.48		.25	.11	.33	.21				.19			.03					7.40
New Orleans (2)	do	.46	1.87			.68		.58					3.25			.35			.40	.35	.27					.22		.05					8.48
New Orleans (3)	do	1.30	.18		.15	.47	.01	.48				.50	2.54		.01	.47		.28	.13	.40	.19				.15								7.26
New Orleans (4)	do	1.85	.34		.18	.45		.54				.48	2.61			.32		.25	.13	.35	.21				.21			.05					7.97
New Orleans (5)	do	1.23	.17		.15	.34	.01	.35				.60	3.04			.32		.24	.11	.30	.18				.18			.02					7.24
New Orleans (6)	do	1.07	.15		.13	.34	.02	.37				.57	3.05			.43		.24	.11	.35	.20				.20			.02					7.25
New Orleans (7)	do	1.16	.03		.09	.38		.41				.64	2.78			.55		.20	.17	.42	.23				.18			.02					7.26
New Orleans (8)	do	.96	.15		.14	.38	.02	.37				.47	2.69			.37		.27	.05	.31	.20				.27			.02					6.67
Opelousas‖	do		3.40			.05	.05	.30					2.72	.05		.05			T.	.56	.04					1.05							7.77
Plain Dealing	Ouachita	1.40				1.90	.12	.12			.15	2.57	1.26						.49	.25				.02	1.81								10.09
Rayne‖	Coast		1.00					.95					2.00			.50				.60	.40					1.60							7.05
Reserve‖	do			2.60		.20		1.20							.60	.06	.67	*	.56	.55	.55					.35							7.34
Robeline‖	Red																																
Ruston	Ouachita	.60				.75	.85					1.00	1.60							.25					2.00								7.05
Schriever‖	Coast				.18		1.50					1.90	.50					.68											.22				4.98
Shreveport	Red	.28			.37	.61	.54				.07	3.12	.05						.06	.14				.24	.90								6.38
Simmesport‖	do		.46			.08						.03	1.76	.06		.17				.79	.41					1.12							4.88
Southern Univ. Farm.	Coast	.60			.10	.90	T.	.49				.20	3.10	.02					.55	.15					.10								6.21
St. Francisville‖	Mississippi		1.50										1.73							.83	.39					.85							5.30
Sugartown	Red					.52	.32						2.30						.92	.28					.65								4.99
Tallulah	Mississippi	.88				.55	.06						1.75												2.27								5.51

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 7, Lower Mississippi Valley.*

Date.	Colorado.						New Mexico.				Texas.				Kansas.										Oklahoma			
	Lamar.		Leadville.		Pueblo.		Albert.		Cimarron.		Amarillo.		Paris.§§		Dodge City.		Ellinwood.		Iola.		Liberal.		Wichita.		Ardmore.§§		Bartlesville.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Mid.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	48	33	39	11	47	27	45	23	49	12	44	26	66	46	44	28	51	32	57	41	46	33	50	40	59	40	54	46
2	44	30	32	20	42	26	53	25	51	22	59	31	63	41	42	32	46	33	47	36	41	27	48	38	60	37	53	36
3	48	24	22	7	32	13	50	33	48	28	49	28	71	41	37	29	44	29	56	39	29	18	49	28	73	45	68	42
4	24	10	8	− 7	13	− 8	35	18	31	12	28	11	77	49	20	1	30	11	39	19	37	− 1	28	11	45	44	33	33
5	26	− 4	21	−11	18	−11	37	4	21	− 7	36	6	45	26	22	− 4	21	4	26	13	32	−12	26	11	39	20	37	17
6	21	9	14	− 1	19	− 3	38	23	37	12	40	9	42	20	26	2	24	4	26	13	34	9	26	8	43	25	34	22
7	16	− 3	12	− 2	21	− 5	33	12	22	1	31	7	36	21	13	− 4	12	− 1	13	− 1	18	− 2	10	0	27	13	22	4
8	19	3	23	− 1	27	0	39	16	40	9	23	17	26	21	96	− 2	15	− 3	13	− 2	20	2	13	0	25	16	14	5
9	21	9	40	14	29	9	53	20	49	14	40	28	41	15	25	4	19	1	18	0	39	10	16	2	39	13	22	4
10	25	16	25	7	47	15	51	35	46	34	63	31	51	15	24	12	38	13	40	12	36	20	40	16	54	29	42	32
11	35	17	10	− 2	36	22	41	24	37	16	42	25	49	36	22	9	28	10	40	21	30	14	26	15	45	33	34	28
12	35	10	30	−10	38	15	42	11	39	9	43	22	34	21	20	6	22	7	27	14	30	10	25	12	32	18	34	16
13	48	19	25	10	48	25	49	28	49	18	50	27	49	20	44	6	43	14	34	23	45	30	37	21	46	18	34	28
14	37	21	13	3	34	21	43	29	37	9	43	31	55	19	34	19	37	22	36	21	39	24	36	24	48	31	40	30
15	38	12	22	− 7	44	14	39	9	30	− 5	44	23	48	25	41	17	40	19	34	19	43	18	40	20	46	24	42	23
16	36	12	15	0	30	16	42	17	37	− 7	46	25	55	25	41	17	41	27	45	19	41	23	43	21	45	26	23	16
17	30	10	10	−15	16	− 5	31	14	23	2	30	12	44	26	17	2	35	10	19	9	35	11	21	10	31	30	26	12
18	20	2	5	−19	11	−16	17	4	12	−16	17	8	38	19	21	0	25	5	20	7	24	5	22	9	22	14	28	16
19	30	− 1	18	−15	25	−11	29	4	25	− 7	24	3	41	19	27	1	29	6	31	9	34	2	33	14	28	16	30	12
20	27	3	12	− 7	20	− 3	30	7	14	− 8	27	12	37	11	27	7	34	4	28	7	34	10	28	8	36	4	28	15
21	26	11	14	−13	21	− 4	30	14	22	− 6	29	14	45	11	24	12	30	11	32	12	33	14	29	15	41	14	36	12
22	25	9	21	− 3	20	− 6	34	1	28	− 6	31	10	52	30	6	33	8	31	12	32	13	33	17	45	19	36	12	21
23	27	15	26	4	21	− 2	43	18	36	2	34	25	37	29	34	26	32	24	35	16	41	25	35	19	38	25	38	12
24	32	20	14	− 7	32	3	40	25	35	5	38	26	41	31	32	19	34	24	34	24	34	25	34	24	45	31	34	32
25	35	5	35	−10	32	− 1	45	16	36	− 7	43	20	47	30	34	17	31	6	26	13	41	14	30	20	45	27	34	24
26	33	13	23	11	52	15	55	18	50	0	54	26	40	19	42	20	40	6	37	7	53	20	43	16	47	21	49	20
27	38	12	27	10	32	15	43	20	47	25	41	22	50	19	38	23	40	17	36	19	42	20	38	24	45	30	49	26
28	44	16	26	7	38	16	44	24	37	14	44	24	58	26	39	25	37	24	38	11	44	22	38	16	54	29	43	26
29	41	10	31	6	37	10	53	18	48	1	50	27	40	28	19	30	11	18	62	41	18	27	12	37	23	26	13	80
30	54	17	42	9	50	28	55	26	56	17	65	25	56	22	58	23	51	19	43	11	60	20	45	19	55	21	49	19
31	62	23	36	24	61	38	66	36	60	19	75	37	.....	22	63	28	53	26	49	32	72	29	51	31	68	36	52	28
Mns	31.7	12.4	22.1	0.4	32.3	8.2	42.1	18.7	37.2	6.8	41.6	20.3	48.1*	25.2	31.8	12.6	33.7	13.6	33.1	15.5	38.1	15.2	32.9	16.8	44.0	74.9	37.2	21.3

Date.	Oklahoma.														Missouri.													
	Enid.§§		McAlister.		Mangum.§§		Muskogee.		Oklahoma.		Weatherford.§§		Woodward.		Caruthersville.		Ironton.§§		Lamar.§§		Olden.		Springfield.		Lynnville, Ky.		Jackson, Tenn.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	49	49	61	43	.....	.....	60	43	54	41	58	33	50	30	55	42	52	35	61	46	56	41	59	47	60	45	66	41
2	56	36	64	40	.....	.....	58	39	56	37	59	34	52	31	66	49	61	46	48	37	60	50	63	40	61	52	66	53
3	58	35	66	44	.....	.....	69	48	67	38	55	39	46	36	76	38	61	33	68	36	65	38	64	40	57	42	70	37
4	30	26	61	40	.....	.....	63	38	38	20	34	28	39	15	72	49	66	43	48	42	70	48	64	34	71	48	75	45
5	32	15	40	21	.....	.....	38	21	32	17	35	17	32	12	64	39	53	50	28	18	65	25	34	16	66	38	73	49
6	30	21	40	25	.....	.....	38	24	32	14	34	29	34	16	42	28	34	19	28	17	40	18	30	20	44	26	49	30
7	19	5	37	14	.....	.....	35	9	19	6	25	8	20	6	40	28	26	20	24	3	33	16	25	4	42	29	46	31
8	18	4	23	13	.....	.....	19	10	17	8	24	11	25	8	30	16	22	3	17	− 3	19	4	11	− 1	30	14	32	21
9	36	7	39	12	.....	.....	30	10	32	9	36	11	32	13	34	9	28	2	29	− 3	26	2	20	0	25	8	33	14
10	50	8	49	28	.....	.....	42	27	49	32	59	29	55	26	40	18	42	10	44	0	31	14	35	30	38	16	44	17
11	37	25	51	34	.....	.....	44	32	34	19	40	21	40	22	46	26	39	25	34	28	38	29	38	23	43	32	47	39
12	30	9	35	20	.....	.....	33	18	28	16	41	14	29	13	47	34	32	32	30	16	39	18	24	17	50	40	52	41
13	30	15	42	24	.....	.....	38	26	38	17	44	17	42	9	36	26	30	25	34	18	28	22	34	24	41	28	44	29
14	39	19	47	35	.....	.....	40	31	39	29	42	20	42	26	50	26	39	23	33	25	36	22	34	23	47	27	56	27
15	45	24	46	24	.....	.....	43	26	41	28	48	25	46	24	42	29	31	22	35	20	37	20	30	20	41	29	53	31
16	51	27	60	29	.....	.....	57	27	53	30	56	24	52	27	51	21	49	16	47	22	47	28	46	23	41	20	48	21
17	20	11	50	21	.....	.....	46	21	40	16	55	16	41	12	38	27	25	16	24	13	44	18	28	11	37	27	48	34
18	25	10	24	15	.....	.....	32	17	21	15	31	13	26	8	30	16	23	9	21	7	34	11	19	8	29	15	38	18
19	36	11	32	17	.....	.....	34	14	30	15	35	14	37	13	26	16	28	9	32	8	28	13	27	12	24	15	24	17
20	55	14	40	10	.....	.....	38	18	34	16	56	15	40	10	40	10	35	5	30	11	35	11	28	15	31	10	35	8
21	35	14	41	15	.....	.....	40	16	38	21	41	16	38	19	45	16	38	12	34	11	38	13	32	12	36	12	43	10
22	45	17	45	19	.....	.....	40	18	39	21	38	12	34	13	36	20	26	18	34	11	34	13	30	14	32	18	40	17
23	36	18	40	25	.....	.....	37	23	36	29	35	31	35	28	36	17	34	8	34	12	32	10	30	16	33	13	39	17
24	38	30	36	32	.....	.....	36	30	39	31	41	32	37	30	34	28	33	25	36	19	30	16	32	29	33	24	37	31
25	49	19	45	28	.....	.....	39	26	40	25	46	26	43	22	36	25	26	22	28	20	32	22	28	14	35	27	39	31
26	52	21	50	20	.....	.....	48	18	48	21	47	28	59	14	39	14	38	4	41	11	35	9	35	11	30	15	38	19
27	46	26	46	28	.....	.....	43	26	43	25	48	26	45	20	40	26	30	19	35	13	32	23	32	20	33	23	42	25
28	48	25	55	29	.....	.....	50	25	47	28	53	35	48	29	48	20	33	16	34	21	39	20	36	12	41	21	49	20
29	38	16	44	17	.....	.....	36	14	32	17	39	18	40	17	34	10	17	0	19	5	28	5	14	3	32	6	46	14
30	50	17	52	18	.....	.....	49	17	49	23	50	23	62	21	36	9	38	− 3	41	5	38	5	43	9	29	4	36	10
31	58	20	60	41	.....	.....	62	34	60	35	60	32	71	24	49	26	47	26	36	19	55	29	56	38	46	25	47	27
Mns	40.0	19.2	45.8	25.2	.....	.....	43.1	24.1	39.5	22.5	44.0	22.5	41.7	19.2	43.8	24.5	36.6	19.0	35.7	16.4	39.5	19.8	34.5	18.5	40.6	24.2	46.9	26.6

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 7*—Continued.

Date	Tennessee.				Arkansas.																		Mississippi.					
	Memphis.		Union City.		Bentonville.		Corning.		Dardanelle. §§		Eldorado. §§		Fort Smith.		Little Rock.		Pine Bluff. §§		Texarkana. §§		Wynne. §§		Clarksdale. §§		Corinth. §§		Greenville. §§	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	58	51	64	44	61	45	54	39	65	40	72	46	63	49	66	51	72	50	65	49	59	48	.....	.....	62	44	68	47
2	62	52	61	54	52	40	65	51	67	44	65	42	58	45	66	48	70	43	60	44	60	53	.....	.....	66	48	69	54
3	68	49	62	42	65	38	68	38	65	38	75	40	68	44	70	43	74	38	68	44	68	53	.....	.....	68	38	75	39
4	74	56	73	48	69	32	77	50	75	38	77	42	72	37	75	57	77	50	76	49	75	38	.....	.....	73	40	80	41
5	62	35	64	41	32	18	72	36	43	28	51	40	39	25	67	25	50	44	45	32	48	47	.....	.....	60	49	58	53
6	47	32	44	27	33	18	40	25	43	25	42	32	35	28	40	29	46	29	42	32	45	28	.....	.....	50	32	43	35
7	37	26	43	29	26	7	37	26	32	30	45	35	35	16	37	24	45	32	39	34	34	28	.....	.....	36	32	47	36
8	26	21	30	15	17	4	29	14	30	20	37	27	24	15	27	20	32	23	32	28	24	17	.....	.....	34	24	36	28
9	30	16	30	11	27	4	31	11	35	17	42	19	30	13	33	16	38	16	40	20	28	13	.....	.....	32	15	39	20
10	48	25	40	18	46	21	36	19	38	16	55	20	37	26	41	24	42	20	57	21	48	16	.....	.....	49	16	53	21
11	48	43	44	36	46	24	43	35	42	29	57	30	45	31	51	40	45	34	61	35	51	26	.....	.....	51	21	56	27
12	49	29	49	36	27	19	44	33	38	29	36	35	33	23	41	30	37	34	32	28	37	36	.....	.....	54	44	46	46
13	32	27	41	29	35	24	34	27	39	29	46	26	40	27	38	26	40	25	46	24	37	27	.....	.....	32	30	44	30
14	52	32	47	29	37	24	46	29	41	26	58	26	44	28	52	33	62	28	56	26	52	28	.....	.....	57	28	62	29
15	37	28	42	30	34	21	39	27	41	27	46	28	41	25	40	28	50	28	47	29	39	24	.....	.....	42	29	50	31
16	48	29	46	24	49	25	50	23	42	24	56	24	54	25	54	28	62	23	54	28	51	25	.....	.....	46	23	54	25
17	42	30	41	28	33	15	44	29	26	26	51	26	41	23	45	28	45	35	51	29	41	28	.....	.....	45	23	51	29
18	30	19	30	18	22	12	29	17	30	15	25	24	26	17	28	19	25	20	29	25	22	22	.....	.....	22	21	28	26
19	23	19	25	18	30	15	25	18	30	11	26	20	31	19	26	19	25	18	27	21	21	17	.....	.....	23	17	25	21
20	33	17	35	12	35	14	39	12	36	11	37	11	39	13	37	17	44	10	35	13	35	4	.....	.....	32	14	37	19
21	39	23	40	19	36	15	43	17	45	15	44	12	41	19	42	23	49	13	43	15	40	6	.....	.....	42	12	43	15
22	36	25	34	21	36	15	37	21	45	19	47	14	45	22	42	27	50	18	44	17	37	14	.....	.....	38	12	44	16
23	33	21	35	17	36	22	34	16	34	24	38	23	33	27	34	23	35	22	39	23	27	19	.....	.....	38	18	36	22
24	37	32	33	29	34	28	33	30	40	25	40	29	37	30	36	30	37	30	40	32	40	18	.....	.....	39	18	39	23
25	37	27	37	29	30	19	35	29	42	30	47	32	38	27	40	31	50	30	47	32	42	22	.....	.....	36	32	49	33
26	36	21	35	17	43	15	37	16	41	22	49	23	43	21	45	25	53	20	49	25	37	20	.....	.....	38	20	45	37
27	40	30	34	28	33	24	36	28	48	23	53	25	43	27	45	29	57	26	53	29	41	24	.....	.....	46	20	53	29
28	50	28	43	23	41	16	45	23	52	22	57	28	49	25	52	28	63	25	56	29	50	26	.....	.....	50	23	56	25
29	29	17	34	9	23	9	35	11	33	19	39	29	32	17	32	20	40	22	39	29	27	16	.....	.....	24	18	33	26
30	36	18	33	7	45	13	35	10	48	16	50	20	44	19	45	20	54	16	52	24	44	13	.....	.....	33	13	44	15
31	54	34	47	27	54	36	50	24	54	19	66	21	59	30	56	35	56	36	63	26	59	21	.....	.....	.....	14	62	18
Mns	43.0	29.4	42.5	26.3	38.3	20.4	42.6	25.3	43.2	24.4	49.3	27.4	42.5	25.6	45.3	28.9	49.2	27.7	48.0	28.8	42.3	25.1	.....	.....	43.9[a]	25.4	49.2	29.2

Date.	Mississippi.						Louisiana.																					
	Kosciusko. §§		Natchez. §§		Vicksburg.		Alexandria. §§		Baton Rouge. §§		Covington. §§		Lafayette. §§		Lake Charles. §§		Monroe. §§		New Orleans.		Robeline. §§		Schriever. §§		Shreveport.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	62	45	72	49	67	56	77	41	74	61	75	40	70	48	80	50	77	42	77	59	.....	.....	.....	.....	69	54
2	69	52	71	58	64	52	69	51	76	60	70	59	71	55	76	50	68	49	74	58	.....	.....	.....	.....	65	46
3	72	38	79	46	74	49	80	42	77	49	76	39	73	42	81	45	80	41	76	54	.....	.....	.....	.....	74	47
4	75	38	80	48	78	54	80	42	79	58	79	40	89	45	79	45	80	41	76	57	.....	.....	.....	.....	76	59
5	63	43	62	55	67	43	60	48	65	63	69	62	67	48	67	45	62	46	71	59	.....	.....	.....	.....	59	55
6	58	37	65	44	58	41	56	42	67	54	69	51	71	50	66	45	52	36	71	55	.....	.....	.....	.....	43	36
7	41	38	50	43	46	34	50	41	57	45	58	48	54	42	59	40	54	38	70	44	.....	.....	.....	.....	43	35
8	40	29	44	33	43	29	42	33	43	36	48	32	44	32	53	34	51	31	47	37	.....	.....	.....	.....	41	29
9	39	20	46	25	43	24	49	25	50	30	53	30	52	28	56	27	48	22	49	36	.....	.....	.....	.....	43	24
10	53	20	65	25	59	29	62	25	62	36	65	29	66	29	63	28	61	22	65	40	.....	.....	.....	.....	56	30
11	57	25	72	34	67	52	73	31	60	58	66	32	71	40	70	34	48	29	66	60	.....	.....	.....	.....	65	41
12	53	46	51	51	56	31	45	39	58	50	61	54	51	51	50	40	44	22	65	37	.....	.....	.....	.....	41	28
13	41	30	53	26	46	27	55	25	57	28	55	30	55	26	52	26	51	26	53	32	.....	.....	.....	.....	50	26
14	63	28	69	27	66	39	70	26	70	43	71	30	72	28	63	29	69	26	72	43	.....	.....	.....	.....	58	37
15	45	32	53	29	49	35	52	38	52	52	59	35	65	46	57	40	55	34	62	45	.....	.....	.....	.....	47	31
16	40	23	58	29	50	31	60	25	57	36	56	29	57	28	60	26	58	28	54	39	.....	.....	.....	.....	56	32
17	56	25	68	29	54	38	55	26	61	43	62	29	63	31	61	30	40	28	57	41	.....	.....	.....	.....	53	36
18	28	25	36	30	43	27	36	35	47	47	53	35	46	43	51	27	32	31	53	41	.....	.....	.....	.....	36	25
19	23	21	29	26	28	24	30	26	35	34	49	36	33	32	50	27	27	24	41	37	.....	.....	.....	.....	27	22
20	34	20	34	23	36	23	36	24	39	29	42	32	38	28	43	25	40	20	41	33	.....	.....	.....	.....	36	20
21	42	18	41	22	43	23	43	21	48	26	51	27	44	25	44	24	49	19	47	30	.....	.....	.....	.....	44	20
22	43	17	44	22	47	28	49	21	50	32	54	28	52	28	56	30	52	19	47	35	.....	.....	.....	.....	47	27
23	39	21	45	27	41	29	45	27	53	36	55	29	55	34	55	36	44	25	49	35	.....	.....	.....	.....	40	32
24	44	25	62	31	50	35	62	34	64	45	64	32	65	39	54	38	42	38	70	41	.....	.....	.....	.....	42	33
25	44	35	52	34	48	35	51	34	54	39	58	40	54	36	58	31	52	34	58	43	.....	.....	.....	.....	48	32
26	43	26	53	27	44	29	52	25	45	32	55	29	53	27	65	28	52	26	48	36	.....	.....	.....	.....	51	28
27	52	27	66	31	56	35	65	29	61	34	57	28	67	32	71	34	60	28	62	37	.....	.....	.....	.....	54	37
28	51	24	58	30	53	32	59	27	55	35	58	28	56	30	65	28	60	28	52	41	.....	.....	.....	.....	56	32
29	31	24	43	30	44	27	47	27	49	38	54	30	52	32	58	30	47	28	48	32	.....	.....	.....	.....	42	32
30	39	14	50	22	43	21	52	21	48	24	55	21	50	23	56	24	53	22	42	26	.....	.....	.....	.....	54	25
31	58	15	64	22	63	37	68	22	63	37	63	21	65	29	68	29	65	23	66	34	.....	.....	.....	.....	68	38
Means	48.3	28.4	55.6	33.5	52.5	34.5	55.8	31.4	56.8	41.6	60.0	35.0	58.5	35.7	60.9	33.7	54.0	30.0	59.0	41.8	.....	.....	.....	.....	51.1	33.2

Climatological Data for December, 1909.

DISTRICT No. 8, TEXAS AND RIO GRANDE VALLEY.

BERNARD BUNNEMEYER, District Editor.

GENERAL CLIMATOLOGICAL CONDITIONS.

The most remarkable feature of the month was the severe and protracted cold weather which affected the entire district. It was not only the coldest month of the year 1909, but also the coldest December on record; and in a large number of localities, especially in the upper Rio Grande and upper Rio Pecos valleys, all previous records of low temperatures were broken.

The precipitation averaged but slightly greater than the normal in Colorado and New Mexico, but there was a decided excess in Texas, due to unusually heavy rains in the eastern portion of the State. Practically all the precipitation over the upper portions of the Rio Grande and Rio Pecos watersheds was in the form of snow, the greatest depth in Colorado being nearly 5.5 feet at Cumbres. In New Mexico the snowfall ranged from 43 inches at Chama, in the northern portion of the Territory, to 3 inches in the more southern localities, the average depth being about 9 inches. In Texas comparatively heavy snows occurred in the northern half of the State on several days, the greatest amount reported being 7 inches at Crockett, but at the close of the month most of it had disappeared. In Colorado and New Mexico, however, the continued cold weather prevented the snow over the upper Rio Grande and Rio Pecos watersheds from melting, and the accumulated depth was much greater at the close of the month than usual, giving fair indications of a good supply of water. Much of the snow at the lower levels was not well packed, but at the higher levels the condition was generally good.

The number of days with .01 or more precipitation averaged about 6 in Colorado, 4 in New Mexico and 5 in Texas, there being 4 more or less well-defined storm periods at irregular intervals from the 2d to the 25th, after which date the weather was generally fair. Despite the rather frequent storms and severe cold there was a large number of clear days in many sections of the district.

TEMPERATURE.

The temperature was decidedly below the normal throughout the district. The deficiency was greatest in the interior and least in the lower Rio Grande Valley and on the Gulf coast, the average for the district being about 6°. The first 3 days and the last day of the month were warm, with maximum temperatures approximating closely those of previous Decembers. On the 4th cold weather overspread the district and it continued cold, with but little interruption, until near the close of the month. The severest weather occurred from the 15th to the 22d. During this period freezing temperatures, with heavy sleet, were recorded southward to the Gulf coast, and temperatures below zero, accompanied by a general snowfall, occurred in the northwestern portion of Texas, and in New Mexico and Colorado.

The 19th was the coldest day of the month and the lowest temperatures recorded were: −39° in Colorado at Wagon Wheel Gap; −33° in New Mexico at Estancia; and −6° in Texas at Mt. Blanco. The highest temperatures reported were 48° in Colorado at Wagon Wheel Gap on the 1st; 78° in New Mexico at Carlsbad on the 31st; and 90° in Texas at Falfurrias and at San Juanito on the 3d.

PRECIPITATION.

The precipitation over the Rio Grande watershed averaged about 1.10 inches, which was slightly greater than the normal. Deficiencies occurred, however, in a number of separated localities. The snowfall was heavy throughout the greater part of the mountains, the greatest depth reported being about 5.5 feet at Cumbres, Colo., and 3.6 feet at Chama, N. Mex. There was no snow over a long stretch of the valley south of Comstock, Tex.

In the Rio Pecos drainage basin the precipitation was slightly deficient, although there was an excess in several localities, mostly in the upper portion. The monthly amounts ranged from 0.12 inch at Fort Sumner to 1.73 inches at Windsors and averaged 0.62 inch. This was an increase of more than 50 per cent over the November precipitation. The snowfall was heavy over the upper watershed, the greatest depth reported being 29 inches at Harveys Upper Ranch. The least was 1 inch at Barstow in the lower valley.

The precipitation over the Nueces and San Antonio watersheds averaged very nearly normal, while those of the Guadalupe, Lavaca, Brazos, Trinity, Neches, and Sabine had a general excess, which was most pronounced over the 3 drainage basins last named, the excess over the Trinity being 1.24, and over the Neches and Sabine as much as 3.00 inches. The Colorado watershed was the only one in Texas with a generally deficient precipitation. The following are the averages for the various drainage basins: Nueces, 1.62; San Antonio, 1.95; Guadalupe, 2.36; Lavaca, 2.96; Colorado, 1.43; Brazos, 2.61; Trinity, 3.56; Neches, 6.69; Sabine, 6.66; and the coastal plains, 1.89 inches.

RIVER CONDITIONS.

While the Rio Grande and Rio Pecos were generally lower than during the preceding month, the other rivers in the district were considerably higher, the gain amounting to several feet in case of the Brazos, Trinity, and Sabine rivers. The Rio Grande was unusually low at Eagle Pass, nearly normal at Zapata, and somewhat below normal at Brownsville, but there was ample water for irrigation and other purposes.

Sharp rises of 10 or more feet occurred from the 1st to the 3d in the upper and middle Brazos and upper Trinity, and less pronounced rises occurred in the upper and middle Colorado. A second rise of 4 feet took place at Dallas from the 5th to the 6th, which brought the river at that place to within a few feet of flood stage. Timely warnings of these rises were issued from this office.

SNOWFALL IN THE MOUNTAINS.

The following reports of the snowfall in the mountain districts of the Rio Grande and Rio Pecos watersheds have been furnished by the section directors of the Colorado and New Mexico sections:

Report of Mr. F. H. Brandenburg, Section Director, Colorado Section:

The distribution of the snowfall up to December 31 was irregular and, as a whole, considerably less than for the corresponding period last year. The ground was not deeply frozen when the first snow fell, and it is likely that considerable moisture will be absorbed when melting begins. Continued cold and the general absence of high winds have been unfavorable to packing. The warm spell at the close of December, which caused considerable settling and some melting, put the snow at moderate elevations in a condition favorable for solidifying, but at higher altitudes, where the weather has remained very cold, the snow is still in a comparatively loose state.

In the region drained by the Rio Grande the snowfall has been greater than for the corresponding period last year, as well as greater than the average.

Report of Mr. C. E. Linney, Section Director, New Mexico Section:

Fairly heavy snow fell in the mountain districts during the closing days of November, and frequent snowstorms during December gradually increased the depth of snow. The unusually protracted cold weather during December, which was the coldest month for the Territory on record, prevented the snow from melting, and at the close of the month the accumulated depth was much greater over all the watersheds of New Mexico than for the past several years.

In the Rio Grande watershed the average for the valleys was nearly 10 inches and in the mountains 27 inches, 5 inches more than it was a year ago. In the valleys of the Pecos and Southeast watershed the average was 8 inches and in the mountains 16 inches, a material increase over last year.

TABLE 1.—*Climatological data for December, 1909. District No. 8, Texas and Rio Grande Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Colorado.																				
Amethyst (near)	Mineral	8,730	1																	Don C. La Font.
Blanca	Costilla	8,403	....	11.8	.....	47	23	−27	19	48	0.14	.....	0.05	2.2	4	14	17	0	sw.	L. C. Audrain.
Cumbres	Conejos	10,015	3								5.05	.....	1.35	65.5	12				.....	Venita A. Good.
Garnett	Costilla	7,576	16	10.0	.....	40	13	−33	18	54	0.32	+ 0.07	0.12	6.8	3	15	12	4	.....	Chas. Speiser.
Hermit	Hinsdale	9,843	....								1.22	.....	0.51	19.5	9	17	5	9	.....	C. C. Mason.
La Veta Pass	Costilla	9,000	....								1.64	.....	0.85	25.8	6	12	11	8	w.	Norvin R. Lively.
Manassa	Conejos	7,700	3	11.1[a]	.....	47[a]	31	−31[a]	19	51[a]	0.25	.....	0.25	2.5	1	.....	.....	.....	sw.	J. B. Chapman.
Platoro	....do	9,675	2								4.33	.....	1.18	53.0	12	18	6	7	w.	Walter R. Hook.
Saguache	Saguache	7,740	17													22	4	5	w.	Eugene Williams.
San Luis	Costilla	7,794	18	15.2	− 7.8	47	31	−28	19	53	0.45	− 0.26	0.40	4.5	2	23	8	0	sw.	P. B. Albright.
Wagon Wheel Gap	Mineral	8,434	10	6.6	− 5.3	48	1	−39	19	61	0.94	+ 0.12	0.27	17.0	6	14	13	4	w.	Ellwood Bergey.
New Mexico.																				
Agricultural College	Dona Ana	3,863	43	38.0	− 4.1	68	1†	3	20	43	0.48	+ 0.04	0.28	3.0	2	19	6	6	nw.	N. M. Agric. College.
Alamogordo (near)	Otero	4,338	9	38.2	.....	68	2	0	19	42	0.94	.....	0.54	6.0	2	18	6	7	sw.	Jas. C. Dunn.
Alamogordo	....do	4,320	....								0.42	.....	0.32	4.0	2	.....	.....	.....	.....	Agent E. P. & S. W. R. R.
Albuquerque	Bernalillo	5,200	32			62	1	0	20	41	0.19	− 0.20	0.10	2.0	3	18	8	5	n.	University of N. M.
Amizett	Taos	9,018	....								3.21	.....	0.10	57.5	10	10	7	14	.....	Geo. W. Oates.
Ancho	Lincoln	6,112	....								1.37	.....	0.96	17.0	3	15	0	16	sw.	Agent E. P. &S. W. R. R.
Aspen Grove Ranch	Rio Arriba	9,000	....								1.48	.....	0.43	24.8	6	21	0	10	.....	Junius D. Maupin.
Bateman Ranch	....do	8,900	....								1.06	.....	0.26	17.0	7	16	2	13	w.	John W. Bateman.
Bluewater	Valencia	6,732	8	22.5	.....	63	31	−17	19	53	0.80	.....	0.32	8.5	8	12	2	17	n.	Bluewater Developm't Co
Bluewater Reservoir	....do	9,000	....								0.52	.....	0.27	5.0	2	10	11	10	w.	Do.
Boas	Chaves	4,154	....	32.6	.....	67	31	− 9	20	46	0.32	.....	0.32	3.5	2	19	6	6	w.	D. C. Savage.
Capitan	Lincoln	6,348	....								0.43	.....	0.22	6.5	3	13	12	6	w.	Agent E. P. & S. W. R. R.
Carlsbad	Eddy	3,120	15	39.6	− 3.4	78	31	0	20	52	0.50	0.00	0.37	3.0	3	14	12	5	se.	U. S. Reclamation Serv.
Carrizozo (1)	Lincola	5,429	2																.....	A. H. Harvey.
Carrizozo (2)	....do	5,438	....								0.75	.....	0.40	7.5	2	.....	.....	.....	.....	Agent E. P. & S. W. R. R.
Chama	Rio Arriba	7,851	8	15.5	−11.2	46	2	−16	5†	43	3.32	+ 0.98	0.56	43.0	10	17	6	8	sw.	Frank C. Johnson.
Cloudcroft (1)	Otero	8,650	7																.....	M. P. Coakly.
Cloudcroft (2)	....do	8,650	....																.....	Agent E. P. & S. W. R. R.
Corona	Lincoln	6,666	....								1.08	.....	0.51	11.0	3	12	9	10	n.	Do.
Coyote	....do	5,800	....								1.62	.....	0.84	6.5	4	16	2	13	sw.	Do.
Cundiyo	Santa Fe	6,889	....								0.88	.....	0.30	7.7	5	19	6	6	w.	Teofilo Vijil.
Demonstration Farm	San Miguel	6,800	1								0.16	.....	0.09	1.5	2	.....	.....	.....	.....	Erb and Westerman.
Duran (1)	Torrance	6,272	1																.....	W. H. Birkhead.
Duran (2)	....do	6,272	....								0.40	.....	0.40	6.0	2	22	3	3	.....	Agent E. P. & S. W. R. R.
Edison Mine	Taos	10,600	....																.....	Frank L. Paxton.
Elk (near)	Chaves		10	36.0	− 3.4	72	31	− 5	20	38	0.50	− 0.16	0.28	7.0	2	16	13	2	w.	Boyd Williams.
Escondido	Otero	4,014	....								0.30	.....	0.30	3.0	1	11	14	6	sw.	Agent E. P. & S. W. R. R.
Española	Rio Arriba	5,590	13	26.2	− 2.6	59	1	− 1	20	42	0.37	+ 0.04	0.37	1.0	1	25	4	2	n.	Mrs. E. F. McBride.
Estancia	Torrance	6,140	4	19.4	.....	53	10†	−33	19	50	0.78	.....	0.78	9.5	2	18	10	3	e.	Agent N. M. Cent. R. R.
Fort Stanton	Lincoln	6,231	30	32.2	− 3.9	72	31	−16	20	52	0.25	− 0.54	0.15	4.0	3	21	7	3	w.	U. S. Sanitarium.
Fort Sumner	Guadalupe	3,960	7			62	26	−11	19	....	0.12	.....	0.12	2.5	2					F. A. Marsonares.
Gallinas	Lincoln	6,635	....								0.60	.....	0.40	6.0	3	26	0	5	w.	Agent E. P. & S. W. R. R.
Gallinas Planting Stat'n	San Miguel	7,500	3	28.8	.....	65	30	−10	18	48	0.66	.....	0.22	5.4	6	11	17	3	w.	U. S. Forest Service.
Harvey's Upper Ranch	....do	9,400	....								1.67	.....	0.49	29.0	7	16	10	5	sc.	Simon B. Warner.
Hillsboro	Sierra	5,224	10	34.4	− 4.5	67	31	2	20	42	0.74	+ 0.06	0.24	5.5	5	20	6	5	w.	J. M. Webster.
Hodges	Taos	8,484	....								0.88	.....	0.27	11.0	5	.....	.....	.....	n.	Ralph W. Johnson.
Hondo Reservoir	Chaves	3,904	1	35.4	.....	72	2	−14	20	46	0.30	.....	0.17	3.5	2	16	9	6	w.	U. S. Reclamation Serv.
Hope	Eddy		3																	N. L. Johnson.
Hopewell	Rio Arriba	9,500	....	13.0	.....	40	30	−23	19	44	2.08	.....	0.60	28.0	9	7	16	8	w.	John T. Blanton.
Laguna	Valencia	5,840	5	23.8[a]	.....	56[a]	1	−20[a]	19	35[a]	0.72	.....	0.64	9.0	2	.....	.....	.....	.....	Gus Weiss.
Lagunita	Guadalupe	4,500	5	32.4	.....	67	31	−14	20	39	0.29	.....	0.27	5.0	2	18	9	4	w.	P. A. Turnbull.
La Huerta	Eddy	3,111	1					0	20	....	0.46	.....	0.41	3.0	2	16	6	9	sc.	D. Barclay Sutherland.
Lake Valley	Sierra	5,415	5								0.60	.....	0.24	12.2	5	17	9	5	sw.	Wm. P. Keil.
Las Vegas	San Miguel	6,384	23	27.6	− 5.5	64	30†	−15	19	50	0.44	− 0.19	0.17	4.7	3	20	9	2	w.	Dr. Wm. C. Bailey.
Los Lunas (near)	Valencia	4,900	18	24.6	− 8.6	62	?	−25	19	41	0.92	+ 0.43	0.80	8.0	2	15	7	9	.....	Richard Pohl.
Los Tanos	Guadalupe	4,919	....								0.36	.....	0.26	4.5	2	21	3	7	w.	Agent E. P. & S. W. R. R.
Magdalena	Socorro	6,557	4	26.1	.....	55	1†	−21	19	40	1.18	.....	0.60	14.2	3	19	10	2	w.	Wm. Pender.
Mineral Hill	San Miguel	7,050	5								0.71	.....	0.43	8.0	3	19	1	10	sw.	W. M. Nelson.
Monument	Eddy	3,500	4																	James M. Cook.
Mountainair	Torrance	6,547	7	26.0	.....	57	2	− 8	20	34	1.79	.....	1.11	19.0	4	21	6	4	sw.	John W. Corbett.
Newman	Otero	3,989	....			68	2	4	20	36	0.63	.....	0.40	3.5	2	23	1	7	sw.	Agent E. P. & S. W. R. R.
Noria	Dona Ana	4,414	....								0.24	.....	0.24	3.0	1	22	3	6	nw.	Do.
Orogrande	Otero	4,171	....								0.82	.....	0.36	6.5	4	12	8	11	w.	Do.
Oscuro (near)	Lincoln	5,016	....								0.28	.....	0.15	3.0	3	25	2	4	n.	Eugene F. Jones.
Oscuro (2)	....do	5,016	....																	Agent E. P. & S. W. R. R.
Otis	Eddy	3,100	....								0.61	.....	0.30	6.5	4	18	9	4	se.	A. M. Hove.
Otto	Santa Fe	6,200	....								0.25	.....	0.18	4.1	7	.....	.....	.....	.....	Otto Goetz.
Pastura	Guadalupe	5,285	....								0.45	.....	0.18	5.0	3	23	0	8	ne.	Agent E. P. & S. W. R. R.
Red River	Taos	8,650	....	14.6	.....	50	31	−27	19	46	2.26	.....	0.52	32.0	7	8	18	5	e.	Mrs. L. R. Penn.
Rincon	Dona Ana	4,030	11	38.6	− 2.3	72	2†	6	5	50	0.36	− 0.12	0.25	4.5	2	12	10	9	s.	Chas. H. Raitt.
Rio Grande Dam	Sierra	4,265	11	34.4	− 2.6	69	2	− 3	19	43	0.22	− 0.27	0.22	2.6	2	16	3	12	nw.	U. S. Reclamation Serv.
Rosedale	Socorro	6,910	5	29.8	.....	56	30	− 4	20	34	1.29	.....	0.56	14.6	6	20	4	7	w.	W. H. Martin.
Roswell	Chaves	3,578	12	34.2	− 7.0	73	2	−10	20	43	0.31	− 0.24	0.18	2.9	3	12	13	6	n.	U. S. Weather Bureau.
San Marcial	Socorro	4,439	14	32.1	− 5.9	69	2	− 8	20	41	0.32	− 0.10	0.32	4.0	2	7	12	12	n.	Agent A. T. & S. F. R. R.
San Rafael	Valencia	6,509	6	26.8	.....	78	29	−14	20	60	1.25	.....	0.53	8.5	5	19	6	6	sw.	Dr. C. M. Grover.
Santa Fe	Santa Fe	7,013	37	21.9	− 8.4	55	31	− 6	19	35	0.55	− 0.21	0.19	5.6	7	16	12	3	ne.	Section Center.
Santa Rosa (1)	Guadalupe	4,624	10	33.4	.....	69	31	−11	17	44	0.24	.....	0.13	5.0	4	19	9	3	w.	John L. Chapman.
Santa Rosa (2)	....do	4,624	....								0.50	.....	0.50	4.0	1	22	7	2	.....	Agent E. P. & S. W. R. R.
Socorro	Socorro	4,600	19	26.7	− 9.0	60	10	−16	21	43	1.04	+ 0.36	0.50	6.3	6	.....	.....	.....	n.	J. J. Leeson.
Stanley (near)	Santa Fe	6,317	....	20.8	.....	60	31	−25	20	46	0.29	.....	0.21	4.2	3	23	5	3	nw.	L. J. Cartwright.
Strauss	Dona Ana	4,080	11																.....	Agent Southern Pac. R.R.
Taos	Taos	6,983	12	23.4	− 3.2	58	31	−19	19	47	0.69	+ 0.01	0.29	8.5	4	22	8	1	w.	Alexander Gusdorf.
Taos Canyon	....do	8,959	....								1.65	.....	0.32	6.8	9	.....	.....	.....	w.	Leocadio Martines, jr.
Tecolote	Lincoln	6,539	....								0.25	.....	0.17	2.0	2	15	8	8	w.	Agent E. P. & S. W. R. R
Three Rivers	Otero	4,559	....								0.18	.....	0.18	2.0	1	14	12	5	ne.	Do.
Torrance	Torrance	6,433	....								0.85	.....	0.45	11.0	2	.....	.....	.....	.....	Do.
Tres Piedras	Taos	8,076	5	15.9	.....	48	1	−23	19	50	1.75	.....	0.84	25.0	5	15	8	8	sw.	Edwin B. Seward.
Truchos	Rio Arriba	7,935	....			52	31				1.30	.....	0.48	18.0	4	11	20	0	.....	Ignacio Cordova.
Tularosa (1)	Otero	4,436	2	38.0[b]	.....	67[b]	2†	4[b]	20	41[b]	0.19	.....	0.19	3.0	1	10	14	7	n.	Irby L. Fairless.
Tularosa (2)	....do	4,436	....								0.48	.....	0.32	6.0	2	21	3	7	nw.	Agent E. P. & S. W. R. R.
Vaughn	Guadalupe		....																.....	Do.
Winsors	San Miguel	8,200	12	22.8	− 4.6	53	31	−18	19	54	1.73	+ 0.73	0.36	20.0	9	13	11	7	w.	Henry D. Winsor.
Texas.																				
Abilene	Taylor	1,738	24	38.6	− 6.4	75	3	3	20	34	0.73	− 0.40	0.48	2.5	4	11	11	9	s.	U. S. Weather Bureau.
Albany	Shackleford	1,429	15	36.4	− 8.6	79	3	− 2	20	37	0.60	− 1.11	0.20	4.0	3	.....	.....	.....	.....	N. L. Bartholomew.

TABLE 1.—*Climatological data for December, 1909. District No. 8*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Texas—Cont'd.																				
Alvin	Brazoria	49	10	.....	.....	.....	.....	.....	.....	.....	3.21	− 0.52	1.43	0.0	4	12	3	16	nw.	F. A. Smith.
Anahuac‖	Chambers	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.13	.....	0.90	0.0	4	.....	.....	.....	.....	B. H. Collins.
Austin	Travis	650	23	44.6	− 7.7	78	3†	21	20	39	1.80	− 0.88	0.60	0.0	6	16	6	9	w.	A. Deussen.
Ballinger§§	Runnels	1,637	14	38.9	− 6.5	81	3	3	20	41	1.16	− 0.02	0.50	2.0	3	17	5	9	n.	E. M. Eubank.
Barstow	Ward	2,573	2	42.4	.....	88	1	3	20	60	0.75	.....	0.62	1.0	2	21	3	7	w.	W. H. Denis.
Beaumont	Jefferson	29	12	51.8	.....	80	4†	21	19	35	5.17	+ 1.95	1.87	0.0	6	10	0	21	n.	Jno. Bender.
Beeville§§	Bee	225	13	51.4	− 3.2	84	3	28	20	38	2.32	+ 0.59	0.75	0.0	7	12	7	12	n.	L. E. Dickey.
Big Springs	Howard	2,396	7	39.4	.....	77	3	− 3	20	38	0.64	.....	0.26	4.0	3	20	4	7	s.	B. Reagan.
Blanco§§	Blanco	1,350	13	42.2	− 6.7	83	3	19	20	45	2.80	+ 1.10	0.80	1.0	8	19	6	6	n.	R. C. Crist.
Boerne	Kendall	1,412	17	46.3	− 2.9	81	3	23	19	46	2.76	+ 0.68	1.15	0.0	7	8	7	16	n.	F. W. Schweppe.
Booth§§	Fort Bend	81	8	.....	.....	.....	.....	.....	.....	.....	2.52	.....	0.52	0.0	10	17	0	14	n.	T. R. Booth.
Boquillas	Brewster	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. A. Ernst.
Bowie	Montague	1,113	9	38.2	− 7.5	77	3	3	20	43	1.02	.....	0.49	5.3	4	19	3	9	n.	Craig Anderson.
Brasoria	Brazoria	25	20	53.2	− 2.8	82	14	25	26	41	3.01	− 0.26	0.85	0.0	11	16	4	11	n.	Mrs. M. A. Stephens.
Brazos	Palo Pinto	801	.....	.....	.....	.....	.....	.....	.....	.....	2.73	.....	0.98	5.6	5	20	0	11	e.	Robt. E. Boyett.
Brenham§§	Washington	350	20	45.6	− 8.5	80	3	22	20	41	4.85	+ 1.30	1.87	0.0	10	14	3	14	n.	Mrs. B. F. Sloan.
Bridgeport§§	Wise	754	.....	.....	.....	.....	.....	.....	.....	.....	1.49	.....	0.90	4.9	4	19	0	12	n.	Thos. C. West.
Brighton	Nueces	12	13	52.7	− 2.7	81	3	32	19†	41	1.51	+ 0.20	1.09	0.0	3	.....	.....	.....	nw.	G. H. Ritter.
Brownsville	Cameron	38	20	58.2	− 3.3	85	2	33	20	32	2.10	+ 0.65	1.09	0.0	8	.....	.....	.....	n.	U. S. Weather Bureau.
Brownwood§§	Brown	1,342	19	38.8	− 7.3	79	2	7	20†	53	0.80	− 0.97	0.55	2.0	5	17	7	7	n.	Mrs. Pearl Smith.
Cameron§§	Milam	.....	1	43.0	.....	80	5	19	20	48	3.20	.....	0.90	0.0	7	22	6	3	n.	J. E. Watts.
Carmona	Polk	.....	1	45.2	.....	81	3†	20	21	42	7.42	.....	3.46	0.0	9	18	3	10	n.	G. S. Warner.
Claytonville	Fisher	2,100	5	36.2	.....	77	3	2	21	42	0.35	.....	0.35	3.5	1	15	11	5	s.	Wm. Lanius.
Coleman	Coleman	1,710	15	35.0[b]	.....	85[o]	3	8[a]	20	49[o]	0.41	− 0.75	0.21	2.0	2	.....	.....	.....	.....	J. H. Tucker.
Colorado	Mitchell	2,066	15	38.2[o]	− 9.5	78[o]	31	13[o]	5†	51[o]	0.86	+ 0.06	.....	5.0	2	.....	.....	.....	n.	R. M. Webb.
Columbia	Brazoria	34	20	50.4	− 5.2	84	4	25	26	39	2.84	− 0.36	0.81	0.0	8	18	5	8	n.	R. B. Loggins.
Columbus§§	Colorado	206	5	.....	.....	.....	.....	.....	.....	.....	4.04	.....	1.62	0.0	8	12	5	14	n.	Mrs. Sophie Bridge.
Comstock	Valverde	.....	.....	44.2	.....	75	3	21	19	37	0.64	.....	0.34	1.0	3	22	2	7	se.	A. D. Brown.
Corpus Christi	Nueces	20	22	53.6	− 3.0	80	3	30	20	32	0.90	− 0.42	0.46	0.0	7	10	7	14	n.	U. S. Weather Bureau.
Corsicana§§	Navarro	445	20	40.8	− 8.4	78	3†	14	20†	42	3.77	+ 1.26	1.80	2.0	9	19	1	11	nw.	E. L. Gibson.
Crockett	Houston	350	5	45.0	.....	81	4	19	20	42	4.86	.....	1.20	7.0	9	18	3	10	s.	A. M. Bencher.
Cuero§§	DeWitt	177	20	50.7	− 3.5	88	4	24	20	51	2.22	− 0.14	1.05	0.0	7	16	0	15	n.	H. R. Forbese.
Dallas§§	Dallas	466	20	38.2	− 4.4	79	3†	8	20†	57	2.58	+ 0.24	1.12	3.0	8	18	0	13	n.	G. A. Eisenlohr.
Danevang	Wharton	145	13	52.6[d]	.....	81	4	18[a]	20	40[a]	1.65	− 2.36	0.70	0.0	3	15	7	9	n.	H. P. Hermansen.
Decatur	Wise	1,047	3	46.3[c]	.....	71[f]	31	26	5†	32[f]	1.55	.....	0.60	5.5	4	26	2	3	.....	Agent Ft. W. & D. C. Ry.
Del Rio	Valverde	952	3	47.0	− 5.4	82	4	26	19	45	1.14	− 0.42	0.56	0.0	7	17	6	8	se.	U. S. Weather Bureau.
Dialville	Cherokee	.....	.....	43.1	.....	78	4	16	20	43	5.94	+ 0.67	3.20	0.0	7	.....	.....	.....	.....	J. M. B. McKnight.
Dublin§§	Erath	1,466	14	40.2	− 6.8	74	3	14	20	36	2.05	+ 0.45	0.80	3.5	5	10	15	6	n.	Jno. O. Shafer.
Duval	Travis	820	20	46.2	− 5.9	77	3†	20	20	41	2.50	+ 0.13	0.97	1.0	6	19	0	12	n.	J. C. Edgar.
Eagle Pass	Maverick	800	20	50.7	− 2.4	86	4	25	16	46	0.60	− 0.33	0.40	0.0	5	8	16	7	.....	Jos. Metcalfe.
Edna	Jackson	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.46	.....	0.58	0.0	7	.....	.....	.....	.....	E. L. Faires.
El Paso	El Paso	3,762	30	40.4	− 4.4	69	2	10	20	38	0.56	+ 0.04	0.41	4.1	3	13	13	5	nw.	U. S. Weather Bureau.
Encinal	La Salle	.....	1	52.0	.....	88	4	28	16	46	1.94	.....	1.52	0.0	3	10	11	10	n.	H C Braden.
Fairland	Burnet	.....	.....	44.3	.....	77	4†	17	20	42	1.43	.....	0.74	1.0	6	19	5	7	n.	R. L. Bush.
Falfurrias	Starr	.....	2	54.8	.....	90	3	26	13	50	0.95	.....	0.80	0.0	4	16	2	13	nw.	W. A. Gardner.
Flatonia	Fayette	465	1	48.6	.....	83	3	21	20	38	3.15	.....	1.24	1.0	8	17	2	12	n.	Julius Laux.
Fort Clark §§	Kinney	1,050	22	45.2	− 3.9	80[a]	3	21	18	40[a]	.....	.....	.....	.....	.....	16	12	3	n.	Post Surgeon.
Fort McIntosh	Webb	460	23	54.5	+ 1.6	89	4	29	16	45	1.26	+ 0.15	0.62	0.0	6	14	0	17	w.	Do.
Fort Stockton	Pecos	3,050	4	44.1	− 1.7	83	31	6	20	51	0.90	+ 0.18	0.63	2.7	4	13	11	7	ne.	H. H. Buts.
Fort Worth	Tarrant	670	14	39.4	− 8.1	77	31	9	20	35	2.81	+ 1.59	1.26	3.0	5	17	5	9	nw.	U. S. Weather Bureau.
Fredericksburg	Gillespie	1,742	20	43.5	− 6.1	76	3	18	19†	37	0.94	− 0.78	0.42	2.0	4	8	7	16	n.	Arthur Striegler.
Gainesville	Cooke	738	20	35.6	−10.0	72	3	4	20	33	2.18	+ 0.08	0.50	6.5	8	.....	.....	.....	.....	J. L. Hickson.
Galveston	Galveston	69	39	52.4	− 3.9	76	3	31	20	24	2.51	− 1.22	0.83	0.0	9	11	10	10	se.	U. S. Weather Bureau.
Gatesville	Coryell	795	5	41.4	.....	75	4†	14	20	40	2.20	.....	0.90	0.0	4	14	17	0	.....	John Ryan.
Georgetown§§	Williamson	750	14	41.6	− 7.9	78	3	18	20	49	1.93	− 0.43	0.68	0.8	9	17	3	11	n.	Prof. R. E. Young.
Gonzales§§	Gonzales	299	4	.....	.....	.....	.....	.....	.....	.....	3.03	.....	0.95	0.0	9	16	0	15	n.	J. M. Johnson.
Graham	Young	1,040	5	36.6[c]	.....	67	4	6[i]	21	37[i]	1.42	.....	0.77	6.5	3	23	1	7	n.	C. W. Johnson.
Grandfalls	Ward	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. C. Bridwell.
Grapevine	Tarrant	670	19	39.6[d]	− 8.2	76[d]	3	9[d]	20	33[d]	3.56	+ 1.52	1.65	4.0	6	10[d]	9[d]	8[d]	n.	W. J. Crowley.
Greenville§§	Hunt	550	9	37.8	.....	76	4	10	20	41	3.95	.....	1.95	5.0	5	15	0	16	n.	J. P. Regan.
Hallettsville	Lavaca	235	18	49.1	− 4.1	81	3	26	20	33	3.46	+ 0.95	1.21	T.	4	13	8	10	s.	Dr. J. E. Lay.
Haskell	Haskell	4,013	18	35.8	− 8.9	79	3	− 3	20	43	0.97	− 0.18	0.60	3.7	3	17	4	10	n.	P. D. Saunders.
Hebbronville	Duval	.....	2	.....	.....	.....	.....	.....	.....	.....	1.14	.....	0.89	0.0	2	.....	.....	.....	.....	Henry Edds.
Hempstead§§	Waller	254	5	.....	.....	.....	.....	.....	.....	.....	3.38	.....	0.85	0.0	5	12	3	16	n.	J. H. Hancock.
Henderson	Rusk	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.79	.....	3.75	1.5	9	16	3	12	.....	M. Kangerga.
Hewitt	McLennan	664	14	.....	.....	.....	.....	.....	.....	.....	3.05	+ 1.40	0.92	0.8	6	.....	.....	.....	.....	I. H. Earle.
Hillsboro	Hill	628	17	43.3	.....	74	2†	12	20	48	.....	.....	.....	.....	.....	.....	.....	.....	.....	Thompson & Campbell.
Hondo	Medina	901	7	47.6	.....	79	1	23	20	38	1.48	.....	0.80	0.0	4	12	13	6	.....	H. E. Haas.
Houston§§	Harris	53	20	49.4	− 4.6	80	4	25	20	35	2.32	− 0.77	0.71	T.	9	10	11	10	n.	U. S. Weather Bureau.
Hubbard	Hill	638	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. C. Mecklin.
Huntsville§§	Walker	400	21	43.4	− 9.1	79	3†	21	20	42	4.90	+ 1.15	1.42	0.0	6	13	0	18	n.	W. Y. Barr.
Jewett§§	Leon	496	5	41.2	.....	80	3†	18	23†	46	3.37	.....	0.87	5.0	6	20	4	7	n.	Earle Adkisson.
Junction	Kimble	1,645	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. T. Rowsey.
Kaufman	Kaufman	448	10	40.4	− 7.8	77	4	9	20	30	5.04	+ 1.76	.....	2.0	5	17	5	9	n.	B. J. Hubbard.
Keene	Johnson	.....	.....	39.7	.....	74	3	13[a]	20	42[a]	3.43	.....	1.11	1.8	8	15	6	10	.....	Industrial Academy.
Kerrville§§	Kerr	1,650	14	43.2	− 2.8	75	4	16	20	46	1.42	− 0.32	0.58	5.8	4	15	3	13	n.	Mrs. F. Coleman.
Knickerbocker	Tom Green	2,050	5	41.3	.....	80	3	2	20	39	0.74	.....	0.40	2.5	4	19	8	4	ne.	Jos. Tweedy.
Kopperl	Bosque	576	9	.....	.....	.....	.....	.....	.....	.....	5.04	.....	2.80	0.8	6	14	8	9	n.	T. A. Johnson.
Lampasas§§	Lampasas	1,026	18	42.9	− 6.3	82	31	15	20	58	2.79	+ 1.07	1.23	2.0	8	17	9	5	n.	Mrs. K. I. Webber.
La Parra	Cameron	38	7	.....	.....	.....	.....	.....	.....	.....	1.50	.....	1.50	0.0	1	.....	.....	.....	.....	Jno. G. Kenedy.
Laureles Ranch	Nueces	20	10	.....	.....	.....	.....	.....	.....	.....	2.18	+ 0.57	1.50	0.0	3	.....	.....	.....	.....	Matt Cody.
Liberty§§	Liberty	38	5	48.7	.....	80	3†	22	13	43	4.11	.....	1.40	0.0	8	11	7	13	n.	Mrs. Fannie Sneed.
Llano	Llano	1,040	18	45.3	− 5.3	78	3	15	20	42	1.07	− 0.25	1.00	0.5	3	22	7	2	ne.	E. W. Torrence.
Llano Grande	Hidalgo	.....	1	49.9	.....	89	17	23	26	45	0.60	.....	0.60	0.0	1	15	2	14	n.	M. D. Wardlow.
Long Lake§§	Anderson	.....	4	.....	.....	.....	.....	.....	.....	.....	3.59	.....	0.76	0.0	8	14	4	13	n.	Geo. Ellis
Longview§§	Gregg	336	20	40.2	− 9.0	78	4	18	20†	40	7.38	+ 2.99	1.86	2.7	9	18	1	12	ne.	C. A. Propst.
Lufkin	Angelina	325	2	45.8	.....	88	4	21	13†	39	6.87	.....	2.73	0.5	10	20	4	7	n.	T. A. King.
Luling§§	Caldwell	418	20	46.0	− 7.5	81	3	22	20	35	2.29	+ 0.22	0.91	0.0	8	16	2	13	n.	John Carter.
Marble Falls§§	Burnet	771	1	.....	.....	.....	.....	.....	.....	.....	2.52	.....	0.94	T.	7	15	3	13	n.	Wm. Harrison.
Marfa	Presidio	.....	1	.....	.....	.....	.....	.....	.....	.....	1.20	.....	1.00	2.0	2	.....	.....	.....	.....	R. K. Colquitt.
Marshall	Harrison	375	.....	42.1	.....	79	4	12	20	38	8.47	.....	3.95	1.7	10	8	14	9	nw.	Lee Scott.
Mexia§§	Limestone	537	5	39.6	.....	79	3†	15	20	44	4.51	.....	1.13	4.7	8	14	9	9	n.	Miss Josephine Newman.
Midland	Midland	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.32	.....	0.20	2.0	2	17	8	6	sw.	H. J. Elder.
Mt. Blanco	Crosby	2,750	21	34.6	− 7.1	77	31	− 6	19	44	.....	.....	.....	.....	.....	16	6	9	nw.	H. C. Smith.
Nacogdoches§§	Nacogdoches	271	10	43.3	− 5.5	80	4	19	21	36	8.40	+ 3.49	2.31	0.0	10	16	4	11	n.	Miss Mary Hofmann.
New Braunfels	Comal	720	20	46.6	− 6.3	80	3	23	20	37	1.61	− 0.60	0.74	0.0	5	17	4	10	n.	J. Giesecke.
Palestine	Anderson	510	27	42.2	− 7.2	78	4	18	20	36	2.40	− 1.27	1.03	0.3	8	13	10	8	n.	U. S. Weather Bureau.

TABLE 1.—*Climatological data for December, 1909. District No. 8*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Texas—Cont'd.																				
Panter	Hood	1,000	19	.....	.....	.....	.....	.....	.....	.....	3.84	+ 1.84	1.33	4.0	6	.....	.....	.....	.....	E. H. Snider.
Pierce	Wharton	.....	3	46.0	.....	77	3	22	20	33	2.05	.....	1.10	0.0	3	10	11	10	.....	R. B. Pointer.
Plainview	Hale	3,370	1	33.6	.....	77	31	− 4	20	46	0.27	.....	0.12	3.0	4	17	6	8	w.	J. F. Sander.
Port Lavaca	Calhoun	20	8	52.2[b]	.....	83	4	27[d]	20	36[d]	2.02	.....	0.92	T.	3	13	8	10	n.	J. H. Bickford.
Ricardo	Nueces	.....	.....	55.2	.....	87	3	30	13†	40	1.20	.....	0.47	0.0	5	17	6	8	n.	Lindsay Waters.
Riverside§§	Walker	169	5	.....	.....	.....	.....	.....	.....	.....	6.55	.....	1.80	0.0	7	16	0	15	n.	Mrs. C. W. Higdon.
Robert Lee§§	Coke	1,850	1	38.3	.....	80	3	3	20	44	0.73	.....	0.40	2.5	3	15	8	8	n.	H. D. Pearce.
Rockland§§	Tyler	136	5	.....	.....	.....	.....	.....	.....	.....	6.13	.....	2.40	0.0	6	15	3	13	n.	D. W. Bellamy.
Rossville	Atascosa	558	2	49.4	.....	83	3	20	19	36	1.79	.....	0.87	0.0	6	14	8	9	n.	W. F. M. Ross.
Runge	Karnes	308	14	.....	.....	.....	.....	.....	.....	.....	1.71	− 0.53	1.47	0.0	2	.....	.....	.....	.....	Reiffert & Frobese.
Sabinal	Uvalde	964	5	50.0	.....	83	4	24	20	43	1.43	.....	0.84	0.0	4	14	4	13	n.	Jas. Johnston.
San Angelo	Tom Green	.....	1	40.6	.....	79	3	6	20	44	1.15	.....	0.60	2.0	3	20	5	6	sw.	C. W. Goff.
San Antonio	Bexar	701	24	47.9	− 5.2	81	3	24	20	35	1.38	− 0.18	0.80	0.0	8	12	8	11	n.	U. S. Weather Bureau.
San Augustine	San Augustine	.....	.....	44.2	.....	79	4	19	21	38	6.70	.....	2.00	0.0	9	13	9	9	.....	F. A. Wilson.
San Juanita§	Hidalgo	.....	.....	57.4	.....	90	3	30	26	44	1.01	.....	0.42	0.0	5	5	6	20	n.	J. B. McAllen.
San Marcos§§	Hayes	588	16	44.8	− 7.6	79	4	23	20†	43	2.50	+ 0.99	0.80	0.0	7	17	0	14	n.	Miss L. C. Ford.
San Saba	San Saba	1,712	5	41.2	.....	77	3†	9	20	46	1.99	.....	0.78	0.1	7	23	1	7	n.	Jas. Burns.
Santa Gertrudes	Nueces	.....	7	.....	.....	.....	.....	.....	.....	.....	1.05	.....	1.05	0.0	1	.....	.....	.....	.....	J. B. Wright, jr.
Seymour	Baylor	1,180	3	38.2	.....	77	31	4	20	38	0.55	.....	0.15	2.5	4	20	2	9	n.	F. M. Deaver.
Somerville	Burleson	251	.....	47.4	.....	83	3	21	28	45	2.69	.....	1.05	0.0	8	8	0	23	n.	W. A. Dolan.
Sonora	Sutton	2,200	6	41.0[a]	.....	78[a]	3	7[a]	20	44[a]	0.85[a]	.....	0.30	0.0[a]	3[a]	5[a]	14[a]	5[a]	s.[a]	Mike Murphy.
Sugarland	Fort Bend	79	11	49.8[a]	.....	80	2†	27[a]	20	43[a]	2.28	− 0.80	0.65	0.0	6	12	9	10	n.	O. M. Bakke.
Taylor	Williamson	583	8	43.4	− 7.2	80	3	20	20	37	1.66	− 0.96	0.62	0.0	9	17	4	10	n.	U. S. Weather Bureau.
Temple	Bell	630	15	41.0	− 8.6	77	3†	10	20	42	2.74	− 0.21	0.95	T.	5	21	0	10	w.	W. B. Tyer.
Tilden	McMullen	.....	3	51.2[c]	.....	89[c]	3	24[c]	13†	48[c]	1.84	.....	0.75	0.0	7	9[c]	10[c]	9[c]	ne.	Wm. Kuykendall.
Uvalde	Uvalde	937	1	49.0	.....	83	4	24	13†	48	1.26	.....	0.93	0.0	3	16	5	10	n.	F. M. Getzendaner.
Valley Junction§§	Robertson	289	4	.....	.....	.....	.....	.....	.....	.....	5.60	.....	1.60	0.0	7	15	3	13	n.	T. M. Williams.
Victoria§§	Victoria	187	11	50.6	− 5.2	83	3	26	20	35	2.23	+ 0.12	1.00	0.0	5	17	1	13	n.	C. C. Zirjacks.
Waco§§	McLennan	424	20	41.0	− 9.9	78	4	15	20	42	4.69	+ 2.39	2.20	1.5	5	15	0	16	n.	E. H. Hall.
Waxahachie§§	Ellis	556	13	38.0	− 7.9	79	3	9	20†	47	3.87	+ 1.39	2.00	1.2	7	17	4	10	n.	C. D. Longserre.
Weatherford§§	Parker	864	20	38.0	− 9.7	75	3	10	20	36	6.43	+ 4.64	3.58	3.7	5	18	3	10	s.	Miss J. Stickfort.
Wharton§§	Wharton	105	7	49.8	.....	82	3	26	20†	44	2.02	.....	0.50	0.0	6	15	1	15	n.	Mrs. F. M. Hughs.
Wills Point	Van Zandt	524	4	39.6	.....	71	3	11	20	38	6.23	.....	1.85	1.0	8	10	1	20	n.	W. W. Gibbard.
Zapata	Zapata	.....	.....	55.2	.....	87	4	29	16	46	0.63	.....	0.34	0.0	4	13	3	15	n.	F. H. Earnest.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for December, 1909. District No. 8, Texas and Rio Grande Valley.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Colorado																																	
Amethyst (near)	Rio Grande																	.05	.02				.04										
Blanca	Trinchera		T.	.03	T.		T.				T.				T.			.05	.02				.04									0.14
Cumbres	Conejos		1.35	.78	.20	T.	.34	.24		.10	.12			T.			T.	.66	T.		T.	T.	.82	.29	.07						.08	5.05
Garnett	Rio Grande										.10							.12						.10								0.32
Hermit	do		.30	.14	T.	T.	.08	T.		.14						.08		.06				T.	.13	.22	.07							1.22
La Veta Pass	Trinchera		.25	.13	.10									.16			.15	.85														1.64
Manassa	Conejos			T.														.25					T.									0.25
Platoro	do		.81	1.18	.24	T.	.16				.32				.03			.12	.04				.34	.17	.42						.50	4.33
Saguache	San Luis																															
San Luis	Culebra						.05				T.							.40														0.45
Wagon Wheel Gap	Rio Grande		.27	.27	.20													.10					.10									0.94
New Mexico																																
Agricultural College	Rio Grande																		.28					.20								0.48
Alamogordo (near)	do																	.54					.40									0.94
Alamogordo (2)	do																		.32					.10								0.42
Albuquerque	do										.01							.08							.10							0.19
Amizett	do			*	.50	*	1.10					*	.42		.35							.30	*	.54								3.21
Ancho	do															.01					.96	.40										1.37
Aspen Grove Ranch	do		.20	.10			.12				.25							.43						.38								1.48
Bateman's Ranch	do		.16	T.	.02		.19			T.	.16							.26				T.	.09		.18						T.	1.06
Bluewater	do			.14			T.	*	.12		.04							*	.32				.06	.12								0.80
Bluewater Reservoir	do		.25	T.		T.	T.									T.					.27											0.52
Boas	Pecos																	T.	.32													0.32
Capitan	do																.07	.22	.14													0.43
Carlsbad	do				T.													T.	.37				.12	.01								0.50
Carrizoso (1)	Rio Grande																															
Carrizoso (2)	do					T.											T.			.40				.35							0.75
Chama	do		.40	.54	.24		.56				.14							.42				.56	.16	.16	.14							3.32
Clouderoft (1)	Pecos																															
Clouderoft (2)	do																															
Corona	do																	.51	.42					T.	.15							1.08
Coyote	Rio Grande										.02							.54	.73					.03								1.62
Cundiyo	do			.30			.08	.04										.25								.21						0.88
Demonstration Farm	Pecos							.07										.09														0.16
Duran (1)	do																															
Duran (2)	do					T.												*	.40													0.40
Edison Mine	Rio Grande																															
Elk (near)	Pecos						T.											.28	.22													0.50
Escondido	Rio Grande						T.											T.	.30					T.								0.30
Espanola	do						T.			.37				T.				T.														0.37
Estancia	do																	*	.78													0.78
Fort Stanton	Pecos																*	.15	.10	T.												0.25
Fort Sumner	do																	*	.12													0.12
Gallinas	do																	.40	.10												.10	0.60
Gallinas Planting Stat	do		.11	.01	.22		.03				.09							.20														0.66
Harvey's Upper Ranch	do		T.	.27	.49	T.	.31				.13				T.			.24					.07		.16							1.67
Hillsboro	Rio Grande		.20					T.											.24	.12				.08	.10							0.74
Hodges	do			.27	.12		.16	.12										.21														0.88
Hondo Reservoir	Pecos																	.13	.17													0.30
Hope	do																															
Hopewell	Rio Grande		.60	.23	.02		.20			T.	.25							.32	T.			.02	.25	T.	.19						T.	2.08
Laguna	do								T.									.64	.08					T.								0.72
Lagunita	Pecos			.02														*	.27													0.29
La Huerta	do				.05													T.	.41													0.46
Lake Valley	Rio Grande		T.	.02			.02											.16	.24		T.	T.		.16								0.60
Las Vegas	Pecos			T.	.17										T.			.13	.14						T.							0.44
Los Lunas	Rio Grande		.12															.80														0.92
Los Tanos	Pecos			T.	.10														.26													0.36
Magdalena	Rio Grande			.18			T.				T.							.60	.40				T.	T.								1.18
Mineral Hill	Pecos				.20		.08												.43													0.71
Monument	do																															
Mountainair	Rio Grande				.42		.19				T.							1.11			T.			.07								1.79
Newman	do																	*	.23	T.				T.	.40							0.63
Noria	do																	T.	.24					T.								0.24
Orogrande	do																		.36	.14	T.			.20	.12							0.82
Oscura (near)	do																		*	.15					.13							0.28
Oscura (2)	do																															
Otis	Pecos				.06		T.											T.	.30	.10			T.	.15								0.61
Otto	Rio Grande		.01	.01			.01				.01							*	.18	T.												0.25
Pastura	Pecos																	.18	.18				.09									0.45
Red River	Rio Grande		.36	.52											.27			.50	.07				.12		.42	T.						2.26
Rincon	do																T.	.11						.25	T.							0.36
Rio Grande Dam	do																	*	.22		T.	T.		T.								0.22
Rosedale	do		*	.56		*	.06				T.							.15	.48	.03				.01								1.29
Roswell	Pecos																	.12	.18				.01									0.31
San Marcial	Rio Grande																	*	.32		T.											0.32
San Rafael	do		.05	.53			.27																*	.40								1.25
Santa Fe	do		.08	T.	T.	.06	.07				.13							.02				T.	T.	.15	.04							0.55
Santa Rosa (1)	Pecos			.01	.10							T.				T.		*	.13													0.24
Santa Rosa (2)	do																	.50														0.50
Socorro	Rio Grande		.10								.02							.12	.50			.10	.20									1.04
Stanley	do		T.	T.		T.	T.			T.	T.							.02	.21						.06							0.29
Strauss	do																															
Taos	do						.29											.16					.08		.16							0.69
Taos Canyon	do		.13	.32	.19		.25				.12				.12			.26				T.	.08		.18							1.65
Tecolote	do			T.							T.							.17	T.		T.	T.		T.	.08							0.25
Three Rivers	do														T.			.18		T.												0.18
Torrance	Pecos																	.40	.45													0.85
Tres Piedras	Rio Grande	T.	T.	.40	.26	T.				10							.84							.21								1.75
Truchas	do				T.	.30						.28						T.	.24					.48								1.30
Tularosa (1)	do																		.19	T.		T.		T.								0.19
Tularosa (2)	do																	.32	.16													0.48
Vaughn	Pecos																															
Winsors	do		.03	.32	.38		.23				.26							.07	.13			.02			.31							1.73
Texas																																
Abilene	Brazos				T.														.23	.02			T.	.45	.03							0.73
Albany	do																		.20	.20				.20								0.60
Alvin‖‖	Coast					.61						1.43							.58							.59							3.21
Anahuac	do											.90							.33	.70					.20								2.13
Austin	Colorado					.60					.04	.19						T.	T.	.40				.31	.26								1.80
Ballinger‖‖	do																			.36				.30	.50							1.16
Barstow	Pecos										T.								.12	T.			.62										0.75
Beaumont‖‖	Neches	.71					1.47				1.87					.18			.41							.53							5.17
Beeville‖‖	Coast	T.				.70					T.	.05							.12	.25	.75			T.	.40	.05							2.32

TABLE 2.—*Daily precipitation for December, 1909. District No. 8*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Texas—Cont'd.																															
Big Springs	Colorado				T.													T.	.20	.26				.18								0.64
Blanco‖	Guadalupe	.20				.80							.12						.50	.60				.28	.29	.01						2.80
Boerne	San Antonio				1.15						.20	.01						T.	.75	.05			.29	.31								2.76
Booth‖	Brazos	.24	.03			.42							.52					.03	.52	.48	.18			.04		.06						2.52
Boquillas	Rio Grande																														
Bowie	Trinity								.03										.40	.10				.49								1.02
Brazoria	Brazos	.06				.52					T.	T.	.50					.85	.08	.50	.10		.02	.17	.19	.02						T. 3.01
Brazos‖	....do		.43			.98													.21	.19					.92							2.73
Brenham‖	....do	.14				.53						.17	1.87					T.	.31	1.03	.10			.15	.30	.25						4.85
Bridgeport‖	Trinity		.50			.90														.04	.05			T.								1.49
Brighton	Coast	T.				.19															1.09			.23								1.51
Brownsville	Rio Grande					.44			T.	.08									.02	.39	1.09	.02		.02	.04						T.	2.10
Brownwood‖	Colorado					.05													.05	.05		T.		.10	.55							0.80
Cameron‖	Brazos					.90						.05	.42						T.	.50	.60			.21	.52							3.20
Carmona	Neches	.45			1.06	T.	T.				3.46	.13						.10	.30	.74				14	1.04							7.42
Claytonville	Brazos				T.															.35												0.35
Coleman	Colorado																			.20				.21								0.41
Colorado	....do																		*	.86												0.86
Columbia	Brazos	.08									T.		.81		.22			.65	T.	.56	.12		.22		.18							2.84
Columbus‖	Colorado	.30				.46						.20	1.62						.16		1.04			.14	.12							4.04
Comstock	Rio Grande																		.24					.34	.06							0.64
Corpus Christi	Coast				T.	.10				T.	T.	T.						.03	.01	.45	.08			.15	.08							0.90
Corsicana‖	Trinity	.32				.55						.17	.27						.15	.20				.17	1.80	.14						3.77
Crockett	....do	.75				.90	.01				T.	.81	.11					.01	T.	.70				.37	1.20							4.86
Cuero‖	Guadalupe	.02				.38						.05						.30				1.05			.35	.07						2.22
Dallas‖	Trinity				.02	1.10						.10	.01					.25	T.	.17					.91	.02						2.58
Danevang	Coast					.55						T.						.40		.70												1.65
Decatur	Trinity					.60													.35	.20				.40								1.55
Del Rio	Rio Grande											.13	.18						.42	.16			.07	.17	.01							1.14
Dialville	Neches				.85		.01				T.	3.20							.01	.40				.32	1.15						T.	5.94
Dublin‖	Brazos	.50				.40						T.							.15	.20				T.	.80							2.05
Duval	Colorado				T.	.57				.45	T.	.11						T.	T.	.10				.97	.30							2.50
Eagle Pass	Rio Grande					.05														*	.40			*	.15							0.60
Edna	Lavaca				.58								.48			T.		.20	.30			.40	.20	.30								2.46
El Paso	Rio Grande			T.														.14	.27					.15								0.56
Encinal	Nueces																				1.52			.35	.07							1.94
Fairland	Colorado				.25						T.	.18								.05	.05			.74	.16							1.43
Falfurrias	Coast					T.					T.							T.		.25	.55			.10	.05							0.95
Flatonia	Guadalupe					.55					.05	.60						T.	.17	1.24			.10	.11	.33							3.15
Fort Clark‖	Rio Grande																														
Fort McIntosh	....do										.09									.62	.27		.05	.17	.06							1.26
Fort Stockton	Pecos																	T.	.02	.10	.15	T.	T.	.63								0.90
Fort Worth	Trinity				1.26						T.	T.							.20	.10				.76	.49							2.81
Fredericksburg	Colorado										T.								.20	.20				.42	.12							0.94
Gainesville	Trinity				.33	.28			.05			.01							.50	.10			.48	.43								2.18
Galveston	Coast	.62			.10	.18	T.				T.	.83	T.		.02	.03		.33	T.	.16		T.	T.		.24						T.	2.51
Gatesville	Brazos					.50					.30													.90	.50							2.20
Georgetown‖	....do	.02				.68	.01					.02	.38						T.	.40	T.			.08	.27	.07						1.93
Gonzales‖	Guadalupe					.69						.30	.11						.25	.95	.23		.15		.28	.07						3.03
Graham	Brazos				T.														.55	.10				.77								1.42
Grandfalls	Pecos																														
Grapevine	Trinity				*	1.65													*	.49				*	1.42							3.56
Greenville‖	Sabine	.40				.75						.35							.30	.20					1.95							3.95
Hallettsville	Lavaca					.74					T.	1.01	T.					T.	T.	1.21			T.		.50							3.46
Haskell	Brazos																		.35	.02				.60								0.97
Hebbronville	Coast																			.89				.25								1.14
Hempstead‖	Brazos	.85				.73							.50	T.						.75		T.	T.	T.	T.	.55						3.38
Henderson	Neches	1.10				.64	.05					3.75	.10						.40	.30				.35	1.10							7.79
Hewitt	Brazos				T.	.92					T.	.40							.08	.25			T.	.60	.80							3.05
Hillsboro	....do	.71					.93						.76																			
Hondo	Nueces				T.					T.	.10								T.	T.	.80			.37	.21							1.48
Houston	Coast				T.	.34	T.	T.			T.	.71	T.		.02	.06		.36	.12	.63	.01		T.		.07						T.	2.32
Hubbard	Trinity																														
Huntsville‖	....do	1.08				1.42						.17	.60						.52						1.11							4.90
Jewett‖	....do					.65					.35		.30							.50					.87	.70							3.37
Junction	Colorado																														
Kaufman	Trinity					.80	T.					1.77							T.	.20				*	2.27							5.04
Keene	Brazos	.02			.85	.84					T.	.10							T.	.18	.15			.18	1.11							3.43
Kerrville‖	Guadalupe	.23																		.58				.25	.36							1.42
Knickerbocker	Colorado				T.														.04	.25			T.	.40	.05							0.74
Kopperl‖	Brazos		.38			1.50						T.							.04		.12			T.	2.80	.20						5.04
Lampasas‖	....do	1.23											.05	.06					*	*	60			T.	.22	.63						2.79
La Parra	Coast																				1.59											1.50
Laureles Ranch	....do									.46												1.50			.22							2.18
Liberty‖	Trinity	.37			.63							.10	1.40					T.	.50	.85	.10				T.	.16						4.11
Llano	Colorado				T.							T.							T.	.05				1.00	.02							1.07
Llano Grande	Rio Grande					T.														T.	.60	T.		T.								0.60
Long Lake‖	Trinity	.61					.68					.30	.50						.04	.34	T.				.76	.36							3.59
Longview‖	Sabine	1.56				.96		.12				.46	1.86						.32	.27	T.				1.05	.78							7.38
Lufkin	Neches	.66				.82	.04					2.73	.51					.06	.11	.59				.17	1.18							6.87
Luling‖	Guadalupe					.51					T.	11	.10						T.	.91	.10			.15	.35	.06						2.29
Marble Falls‖	Colorado	.50				.94						T.	.08						T.		.40	T.		.28	.30	.02						2.52
Marfa	Rio Grande																		.20					1.00								1.20
Marshall	Sabine	.70		T.		.68	.15	.04				3.95	.70						.45	.27				.15	1.38							8.47
Mexia‖	Brazos	.23				.75						.53	.97						.09	.38					1.13	.43						4.51
Midland	Colorado																		.20					.12								0.32
Mount Blanco	Brazos																														
Nacogdoches‖	Neches	1.01				.93		.10				.75	2.31						.18	.40	.40				1.00	1.32							8.40
New Braunfels	Guadalupe					.18					.11									.74				.37	.21							1.61
Palestine	Trinity				.34	.13	T.				.01	.65							.13	.04				.51	.59							2.40
Panter	Brazos	1.20			1.33															*	.42			.12	.77							3.84
Pierce	Colorado					.64						.31										1.10											2.05
Plainview	Brazos				T.		T.											.05	.08	.12			T.	.02								0.27
Port Lavaca	Coast					.84						.26			T.			T.	T.	.92			T.	T.	T.							2.02
Ricardo	....do					.13													.10	.30	.47	T.		.20	T.							1.20
Riverside‖	Trinity	.84				1.20						.26	1.75						.50		T.				.20	1.80							6.55
Robert Lee‖	Colorado																		T.	.30				.40	.33							0.73
Rockland‖	Neches	.35				1.11							2.40						.38	.75					1.14							6.13
Rossville	Nueces					T.					T.	.03						.02	.19	.63				.87	.05							1.79
Runge	San Antonio																					1.47			.24							1.71
Sabinal	Nueces											.14							.84	T.		T.		.33	.12							1.43
San Angelo	Colorado																		T.	.60				.50	.05							1.15
San Antonio	San Antonio										.04	.02						.02	.45	.39		T.	T.	.34	.12						T.	1.38
San Augustine	Neches	.87		T.		.94	.03	T.			T.	2.00	1.10						.05	.60				.06	1.05							6.70

TABLE 2.—*Daily precipitation for December, 1909. District No. 8*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Texas—Cont'd.																																	
San Juanita	Coast					.12				T.										.21	.42	T.	T.	18	.08								1.01
San Marcos‖	Guadalupe					.25					.05		.20							.30	.20			.70	.80								2.50
San Saba	Colorado				.78	.01						.02							.38	.12				.50	.18								1.99
Santa Gertrudes‖	Coast																				1.05												1.05
Seymour	Brazos				T.		T.		T.									T.	.15	.10				.15	.15								0.55
Somerville	do					.07						1.05							*	*	.50	T.	1.00	.02		.05							2.69
Sonora	Rio Grande																																
Sugarland	Brazos				.65							.31			T.			.36	.54				.32		.10								2.28
Taylor	do	.01			.62						.07	.20						.01	.18	.06				.33	.18							T.	1.66
Temple‖	Brazos	T.				.55													T.	.79				.39	.95	.15							2.74
Tilden	Nueces					.12					.07							T.	.06	.75	.38			.27	.19								1.84
Uvalde	do																			.93			T.	.25		.08						T.	1.26
Valley Junction‖	Brazos						1.00				1.40	.50							.10	.50	.50				1.60								5.60
Victoria‖	Guadalupe					.50						.30							*	1.00				.43									2.23
Waco‖	Brazos					1.60							.54						.20	.15	T.	T.			2.20								4.69
Waxahachie‖	Trinity	.25				.69						.37	.35						.09	.12					2.00	T.							3.87
Weatherford‖	do	3.58				1.08													.27	.18					1.32								6.43
Wharton‖	Colorado					.50							.33						.38	.50	.12			.19	T.								2.02
Wills Point	Sabine	.04			.20	.55	T.		T.	T.	T.	1.42							.50	1.00				.67	1.85							T.	6.23
Zapata	Rio Grande										T.									.24	.34	T.	.02	.03									0.63

TABLE 3.—*Maximum and minimum temperatures at selected stations December, 1909. District No. 8, Texas and Rio Grande Valley.*

Date.	Colorado.				New Mexico.																Texas.							
	Garnett.		San Luis.		Agricultural College.		Carlsbad.		Fort Stanton.		Mountainair.		Rosedale.		Roswell.		Santa Fe.		Santa Rosa.		Abilene.		Big Springs.		Brownsville.		Corpus Christi.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	39	9	45	10	68	25	70	27	57	36	55	30	55	34	65	28	44	22	59	34	60	45	63	36	85	60	79	60
2...	37	11	44	9	68	38	75	34	61	25	57	33	55	35	73	30	44	32	64	32	70	40	71	37	85	61	73	58
3...	36	9	44	12	65	46	75	44	53	42	53	33	47	32	68	36	40	27	56	40	75	53	77	46	83	68	80	68
4...	23	8	44	1	48	35	69	36	47	25	38	21	35	19	52	24	30	9	48	21	60	33	64	36	81	74	78	74
5...	20	−12	43	− 4	47	7	53	13	49	7	37	8	27	12	44	10	33	7	45	16	39	21	48	24	77	56	76	47
6...	30	0	30	10	50	37	49	30	41	25	33	22	32	22	52	24	27	9	41	28	53	26	57	33	76	50	66	45
7...	24	− 7	26	− 2	49	18	49	15	49	10	33	9	36	13	41	12	30	5	45	12	33	17	50	20	66	54	55	43
8...	29	− 7	30	− 3	57	30	55	21	52	21	41	19	42	22	50	22	36	15	48	22	33	20	38	26	60	49	56	36
9...	30	− 3	42	1	60	24	52	21	64	12	49	19	47	24	51	16	39	16	56	21	48	19	55	20	59	53	61	38
10...	34	4	37	24	64	30	72	35	56	28	48	30	46	38	68	26	35	19	52	30	63	45	68	35	77	52	69	61
11...	38	− 8	30	− 1	49	28	64	34	46	26	38	13	39	22	47	27	27	6	43	25	51	32	57	38	78	67	78	52
12...	27	−10	35	− 5	50	16	55	16	43	11	42	8	44	13	52	14	29	3	49	17	45	24	55	20	74	48	58	44
13...	40	3	41	10	54	20	66	24	52	31	47	14	50	26	58	25	38	16	56	33	62	28	66	28	71	36	70	38
14...	37	− 7	39	5	75	32	60	27	46	25	39	16	42	20	53	27	32	12	50	28	52	31	53	29	80	58	65	56
15...	28	− 9	34	− 6	47	28	49	29	44	10	40	10	33	16	47	18	32	5	45	18	50	25	51	23	68	50	62	45
16...	20	1	31	− 7	53	31	59	25	48	20	42	13	42	22	53	25	32	10	51	17	56	31	56	24	65	41	59	40
17...	12	−23	33	−20	50	24	54	25	21	8	29	7	31	16	33	15	22	7	33	−11	44	18	34	19	78	57	64	47
18...	10	−33	20	−13	24	20	25	18	18	− 5	18	− 5	22	7	19	13	18	− 2	16	−10	19	16	21	16	70	38	47	33
19...	15	−21	15	−28	24	5	24	12	34	− 5	19	− 7	28	− 1	18	− 6	20	− 6	28	−12	24	11	30	15	39	34	33	30
20...	17	−22	24	−22	29	3	23	0	34	−16	22	− 8	21	− 4	22	−10	20	− 3	29	9	30	3	31	− 3	44	33	39	30
21...	23	− 6	20	−18	34	25	30	15	41	− 2	28	12	23	3	26	7	26	8	28	11	33	14	31	11	42	37	43	35
22...	29	11	35	− 4	33	30	33	28	48	3	30	21	38	12	30	22	32	12	33	7	36	30	35	.....	42	40	44	39
23...	25	2	35	4	38	30	36	32	45	10	33	13	33	14	33	29	39	10	41	12	35	32	35	.....	45	40	51	40
24...	23	1	29	7	52	35	58	32	38	28	24	12	36	16	50	31	27	8	40	26	59	35	56	.....	53	44	52	46
25...	20	−24	26	−22	46	25	52	23	50	14	31	6	48	14	52	22	29	2	47	17	47	29	49	.....	59	47	59	43
26...	24	−19	27	−13	52	25	58	21	48	12	38	11	47	13	52	19	37	8	55	21	57	29	51	.....	65	35	53	40
27...	35	−19	37	− 5	58	22	67	26	52	23	43	12	54	25	62	20	39	4	55	30	47	30	49	35	76	44	75	46
28...	39	−15	33	− 7	53	26	57	21	51	30	38	14	49	24	54	21	38	14	48	27	52	28	55	25	72	42	61	40
29...	28	−19	31	−13	57	30	60	28	54	25	39	12	55	24	56	21	42	13	59	16	54	27	61	30	68	47	55	44
30...	25	−21	35	−15	57	28	65	25	60	25	38	16	56	26	62	20	42	13	66	26	61	34	65	39	70	46	63	48
31...	39	2	47	14	66	28	78	26	72	23	49	24	50	23	66	26	55	22	69	38	75	48	75	37	77	63	76	60
Mns	27.3	−7.2	33.6	−3.3	50.3	25.8	54.6	24.6	40.7	18.8	37.8	14.1	40.7	18.8	48.7	19.8	33.4	10.4	46.9	20.0	49.1	28.2	51.8	26.9*	67.3	49.2	61.3	46.0

Date.	Texas.																											
	Del Rio.		El Paso.		Fort McIntosh.		Fort Stockton.		Fort Worth.		Galveston.		Hallettsville.		Houston.		Lufkin.		Palestine.		Plainview.		San Antonio.		Seymour.		Taylor.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	77	36	66	40	85	47	75	37	64	46	74	63	74	57	74	58	71	52	66	50	53	30	74	45	62	39	72	46
2...	77	38	69	46	85	46	77	42	61	45	68	61	78	58	74	52	73	40	68	45	65	33	76	47	64	35	71	45
3...	80	44	66	50	87	64	79	42	75	54	76	68	81	59	80	59	78	46	78	54	68	38	81	63	75	44	80	57
4...	82	56	50	32	89	56	64	38	69	34	75	71	70	60	80	70	88	67	78	42	56	22	79	57	50	28	79	42
5...	58	38	46	16	86	52	53	19	37	25	72	49	60	41	71	42	75	35	47	31	38	13	57	38	37	19	43	34
6...	57	34	51	36	75	42	63	38	50	32	72	50	57	40	57	43	48	35	47	34	49	24	58	36	45	27	53	32
7...	52	36	50	27	71	41	55	20	40	21	56	44	57	41	49	34	46	37	40	29	31	11	49	34	49	17	46	32
8...	57	35	56	34	60	35	51	27	30	23	50	41	57	35	52	33	49	38	43	28	29	13	51	32	45	21	44	27
9...	48	29	61	26	56	43	74	23	40	18	58	35	54	29	56	30	52	24	46	22	46	17	49	28	48	21	46	23
10...	59	40	66	42	62	42	77	36	59	40	68	58	68	51	70	47	59	34	61	39	68	30	60	46	56	39	60	46
11...	62	39	50	36	75	51	64	40	59	34	71	47	77	64	74	45	70	55	68	38	58	30	71	45	56	33	69	39
12...	56	34	47	22	73	43	55	22	37	25	48	36	64	40	45	32	60	30	38	25	45	20	55	36	43	22	45	31
13...	69	28	60	30	77	32	74	32	54	25	61	37	64	31	64	29	60	21	58	23	47	25	69	34	50	25	64	29
14...	69	36	57	33	81	44	60	32	54	35	68	58	66	43	70	49	67	4	60	41	46	27	68	41	48	25	60	42
15...	57	36	47	33	75	48	50	23	50	30	58	44	57	41	52	37	59	33	47	32	46	22	56	37	49	30	53	33
16...	59	26	51	28	65	29	66	23	58	30	57	43	57	31	55	34	59	23	56	32	51	24	57	32	55	30	56	30
17...	64	32	45	23	70	36	54	24	43	23	61	47	59	39	53	42	52	37	52	36	38	15	54	37	39	19	51	28
18...	32	27	25	20	65	37	24	17	23	19	47	36	39	30	43	30	45	28	36	26	18	13	37	27	22	17	28	22
19...	31	26	30	13	45	32	27	16	26	17	40	34	32	27	32	29	28	* 26	27	23	19	− 3	31	25	34	18	27	21
20...	42	28	29	10	43	31	35	6	32	9	39	31	35	26	35	25	37	21	34	18	33	− 4	40	24	36	4	33	20
21...	42	36	34	28	44	36	37	25	38	12	41	32	38	30	40	26	41	32	37	20	29	14	41	30	37	9	35	24
22...	40	37	35	30	45	37	37	30	45	28	49	38	44	35	51	36	48	33	45	28	32	11	39	35	41	30	40	32
23...	40	36	39	31	46	37	43	34	40	34	54	44	49	37	50	40	54	36	39	34	32	26	41	34	43	33	37	36
24...	62	40	51	36	65	42	61	38	52	34	64	48	50	39	62	45	41	35	43	34	47	30	60	38	55	31	54	36
25...	59	32	48	27	67	40	58	28	48	33	52	39	54	34	55	36	54	29	47	32	46	18	58	37	49	26	51	34
26...	58	35	50	26	65	32	69	28	54	28	50	37	56	29	58	32	56	21	53	29	60	24	56	32	59	21	55	28
27...	77	32	58	29	74	36	68	37	48	34	69	46	64	36	69	41	64	31	54	36	46	22	70	40	46	28	55	34
28...	63	31	55	29	73	36	61	31	57	31	52	42	59	31	60	36	61	26	57	30	46	23	62	32	55	22	60	28
29...	60	31	58	33	72	36	66	28	42	30	53	44	59	35	56	38	57	32	46	32	52	23	58	37	58	25	52	32
30...	65	37	59	30	70	38	69	29	60	27	57	46	63	31	58	35	58	23	58	30	66	22	65	34	65	34	63	28
31...	70	48	69	31	74	39	83	40	77	44	65	57	72	51	74	55	72	40	71	44	77	31	72	55	77	40	72	46
Mns	58.8	35.3	50.9	29.9	68.4	40.6	59.0	29.2	49.1	29.7	58.9	46.0	58.5	39.7	58.7	40.0	57.5	34.2	51.6	32.8	46.4	20.8	57.9	37.7	49.9	26.4	53.4	33.5

Climatological Data for December, 1909.

DISTRICT No. 9, COLORADO VALLEY,

FREDERICK H. BRANDENBURG, District Editor.

GENERAL SUMMARY.

The month was abnormal in every respect. Low temperatures prevailed; in almost all localities the mean was the lowest ever observed in December; and in the matter of sustained cold, it is probable that the month has never been equaled, although lower extremes have occasionally been noted. In addition to the severe temperature, the snowfall was heavy, and in the central part of the district excessive. There was much destruction from floods in southern Nevada, an occurrence without known precedent in winter. Ice gorges formed in some of the Utah streams, flooding the adjacent lands. Railroad traffic was much impeded, and some mountain districts were cut off for a long time by snow slides and drifting. Agricultural interests also suffered; there was some loss of stock on account of the severe cold and deep snow; and there is reason to apprehend serious injury to the tenderer fruits in portions of the district.

TEMPERATURE.

The mean of the 122 stations reporting was 26.8°, or 7.2° below the normal. A deficiency occurred in all localities. It was greatest over the Colorado Plateau, in eastern Utah, and in the mountain parks and valleys. The least deficiency was noted in the central Gila Valley. By subdivisions the means and departures were: Western Wyoming, 6.4°, −8.0°; western Colorado, 12.5°, −10.2°; eastern Utah, 12.3°, −10.6°; western New Mexico, 27.1°, −7.1°; Arizona, 40.0°, −5.2°. The highest monthly mean was 50.3° at Yuma, and the lowest −4.7°, at Wellington, Utah. A mean below zero also occurred at Eden, Wyo. The 1st and 31st were the only warm days of the month. The severest cold occurred from the 3d to 7th and from the 17th to 30th. The 18th was the coldest day in the northern and the 19th in the southern half of the district. In Arizona the 4th and 5th were very cold, and over the Colorado Plateau the 24th and 25th showed very low minima. The lowest reported was −47° at Fraser, Colo., on the 18th, and the highest 81° at Red Rock, Ariz., on the 31st.

PRECIPITATION.

The mean of the 163 stations reporting was 1.83 inches, or 0.36 inch above the normal. An excess was general except in the extreme northern and in the extreme southern portions. In southern Utah and Nevada and in southwestern Colorado the snowfall was very heavy. The greatest monthly precipitation was 6.93 inches, at Cascade in the San Juan Mountains. Several stations in Utah and Colorado reported more than 5 inches. The least precipitation was 0.18 inch at Pratt, in southwestern New Mexico, a locality where the precipitation was generally light. At the close of the month the mean depth of snow at 81 stations in western Colorado, having a mean altitude of 8,800 feet, was 27.0 inches. This region furnishes the greater part of the summer flow of the Colorado. By watersheds the means and departures of the precipitation were: Green, 1.74 inches, +0.26 inch; Grand, 2.45 inches, +0.77 inch; San Juan, 3.05 inches, +0.95 inch; Little Colorado, 1.71 inches, +0.60 inch; Gila and tributaries, 1.31 inches, +0.20 inch; lower Colorado and minor tributaries, 2.39 inches, +0.98 inch. The heaviest and most widely-distributed precipitation occurred in the first decade; there was also much snow from the 20th to 24th. There was but little snow during the cold weather from the 25th to 30th.

RIVERS.

In the greater part of the district the weather was too cold for the snowfall to have much effect on the stream flow. In southern Nevada there was much destruction of railroad property by floods in the normally dry arroyos, but few details are obtainable.

MISCELLANEOUS.

The sunshine was deficient in all parts of the district, averaging about 60 per cent of the possible. The relative humidity was high, especially in Arizona.

TEMPERATURE INVERSION DURING DECEMBER, 1909.

The inversion of temperatures in the fruit-growing regions on the western slope during December was so pronounced and characteristic as to merit notice, as showing the relative liability to winter-killing of the tenderer fruits in different localities. Considering first the lower Grand and Gunnison valleys, we find the following extremes at stations from 7,000 to 6,000 feet above sea-level: La Sal, Utah, −11°; Collbran, Colo., −10°; Lujane, Colo., −15°; Crawford, −12°; River Portal, −11°. The mean for this group is −11.8°. In the next group, from 6,000 to 5,000 feet, the values are: Montrose, −14°; Paonia, −12°; Grand Valley, −15°; mean, −13.7°. Between 5,000 and 4,000 feet we have: Delta, −24°; Grand Junction, −15°; Fruita, −21°; Green River, Utah, −23°; mean, −20.7. It will be seen that there is a decided decrease in temperature with decreasing elevation, amounting to 8.9° between the upper and the lower groups. The temperatures in the two higher groups are slightly above the accepted danger limit for peach buds; those in the lower group are considerably below it. A similar condition is found in the San Juan region, in northwestern New Mexico. At the several stations, in the same order of elevation, the values were: Mancos, −14°; Ft. Wingate, −11°; Durango, −12°; Bloomfield, −18°; Fruitland, −17°. In some cases, as at Moab, Utah, and near Grand Junction, exceptionally favorable local conditions, as of air drainage, raise the minimum much above the average for that level, but in general the law of decrease of temperature with decrease of elevation holds, both in winter cold spells and in spring frosts.

SNOWFALL IN THE MOUNTAINS OF COLORADO.

The distribution of the snowfall up to December 31 was irregular and, as a whole, considerably less than for the corresponding period last year. As compared with the normal, there was a deficiency on the northeastern drainage areas, and an excess on the southeastern and western watersheds. The ground was not deeply frozen when the first snow fell, and it is likely that considerable moisture will be absorbed when melting begins. Continued cold and the general absence of high winds have been unfavorable to packing. The warm spell at the close of December, which caused considerable settling and some melting, put the snow at moderate elevations in a condition favorable for solidifying, but at higher altitudes, where the weather has remained very cold, the snow is still in a comparatively loose state.

While the snowfall has been less than a year ago on the upper watershed of the Grand in Summit County and parts of Grand County, the fall in general has equaled the normal. On other parts of the upper drainage system the amounts are, as a rule, greater than the normal and the fall last year.

Except near the Continental Divide, the snowfall over the Gunnison drainage area has not only been greater than the normal, but greater than for the corresponding period last year.

On the upper reaches of the Yampa the snowfall has been less than a year ago, and slightly below the normal. Quite the opposite conditions exist in the region drained by the San Juan proper and its large tributaries that join the trunk stream in

Utah and New Mexico. In this region the fall has been unusually heavy.

FOREST SERVICE SCHOOL.

The Forest Service School, at the Coconino Forest Experiment Station, 8 miles northwest of Flagstaff, Ariz., on the Fort Valley road, was closed for the season in November last. Fully 50 forest rangers were instructed in the various duties pertaining to forestry by Mr. G. A. Pearson, Forester in Charge. The experimental station is the first of its kind established in the Forest Service, and has proven highly successful.

COLORADO RIVER SIPHON.

Work on the inverted siphon under the Colorado River, which is to carry the vitalizing flow of that large stream to the rich but arid lands of the Yuma Valley and mesa, has assumed definite and visible form at the end of three weeks of preparations and preliminary operations.

Under the personal supervision of Mr. Francis L. Sellew, Project Engineer of the Yuma Project of the United States Reclamation Service, the culminating shaft of the siphon is being gradually sunk on the Arizona side of the Colorado, the location being on the Reclamation Service Reservation, between the United States Custom House and the Southern Pacific Railroad bridge. On the California side of the river, ground is now being cleared for sinking the shaft at the beginning of the siphon, into which the water will sink from the end of the main canal, flowing from the Laguna Dam, 14 miles through the Yuma Indian Reservation, pass below the river through the immense concrete tube to be laid thereunder, and bubble forth from the mouth of the completing shaft on the Arizona side, to connect with the canals traversing the Yuma Valley.

SALT RIVER PROJECT—ROOSEVELT DAM.

The highest point on the Roosevelt Dam, on the upper Salt River, is now 228 feet, or 12 feet from the crest of the final structure. The lowest point is about 151 feet as near as can be learned. The water elevation is about 100 feet. Under the rules of construction the water is not to be allowed within 25 feet of the lowest point on the dam, except in an emergency that can not be avoided. In other words, that the contractors may not be interfered with, the Government will not allow the water to be stored within 25 feet of the crest at any time, unless there is a flood of greater proportions than the discharging power of the valves, tunnel, and canal, and the flood lasts long enough to fill the basin above that constantly rising 25-foot line.

It is presumed that, with the heavy snows now in the mountains, an additional depth of 10 to 15 feet of water may be expected in the basin.

TABLE 1.—*Climatological data for December, 1909. District No. 9, Colorado Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Wyoming.																				
Daniel	Uinta	6,740	10	8.0	− 8.0	35	1	−30	19	37	0.70	− 0.15	0.20	7.0	5	15	13	3	nw.	J. M. Van Dervort.
Dixon	Carbon																			Carey O. Morgan.
Eden	Sweetwater	6,577		− 1.8		35	31	−40	24	44	1.10		0.60	11.4	8	13	10	8	n.	Eden Valley L'd & Ir. Co.
Fontenelle	Uinta	6,400	3																	C. W. Holden.
Green River	Sweetwater	6,083	4	11.1		56	1	−32	18	42	0.22		0.12	5.5	3	18	6	7	w.	Geo. H. Maxom.
Kendall	Fremont	7,630																		Art. Doyle.
Pinedale	do	7,167	3	8.4		40	1	−27	18	36	0.38		0.09	7.2	8	18	7	6	nw.	Forest Service.
Willow Creek Cabin	do	7,500	1																	John L. Allen.
Colorado.																				Dan McArthur.
Asheroft	Pitkin	9,483	8	10.6		42	30	−25	18	44	2.41		1.00	34.0	13					Mrs. J. G. Thompson.
Breckenridge	Summit	9,536	19	8.0	− 9.5	42	31	−36	18	46	1.35	− 0.95	0.70	15.5	8	5	15	11	n.	San Juan P. & W. Co.
Cascade	San Juan	8,900	3								6.93		1.14	74.2	13	14	1	16	e.	Lawrence Nolan.
Chromo	Archuleta	7,500	3	13.6		44	31	−28	19	58	1.57		0.32	35.5	10	18	2	11	sw.	Bessie McDonough.
Cochetopa	Saguache	9,088									0.26		0.12	4.8	4	11	11	9	w.	A. A. Wood.
Collbran	Mesa	6,900	16	16.9		42	2	−10	18	25	1.89	+ 0.77	0.36	38.5	16	9	7	15	sw.	Jas. H. Caron.
Columbine	Routt	8,766									5.57		1.20	42.5	18	10	6	15	sw.	Geo. W. Wade.
Columbine Ranch	Delta	6,925									5.50		1.40	60.5	13	14	3	14	sw.	U. S. Weather Bureau.
Corona	Grand	11,660	2	2.6		26	31	−23	18	27	3.68		0.74	44.5	16				w.	C. W. Roe.
Crawford (near)	Montrose	6,600		16.7		44	31	−12	18	34	1.34		0.24	25.0	17	10	6	15		Charles L. Ross.
Crested Butte	Gunnison	8,867									5.45		1.85	44.0	10	18	4	9	nw.	C. M. Paine.
De Beque	Mesa	4,935																		E. M. Getts.
Delta	Delta	4,965	18	17.4	− 8.3	56	2	−24	25	48	1.71	+ 1.13	0.83	11.0	10	16	5	10		Harry T. Hamilton.
Dillon	Summit	8,800									4.32		2.34	24.3	7	6	9	16	n.	Geo. R. Simmons, jr.
Dolores	Dolores	6,500																		Geo. W. Dunkley.
Dunkley	Routt	7,430	3																	U. S. Weather Bureau.
Durango	La Plata	6,534	16	16.6	−11.7	43	1	−12	29	41	3.81	+ 2.41	1.05	34.2	13	15	7	9	nw.	J. M. Witteman.
Eagle	Eagle	6,598	4	10.6		42°	9	−26°	18	50°						11°	8°	8°	w.°	San Juan P. & W. Co.
Eureka	San Juan	10,000	2																	J. B. Willsea.
Fruita	Mesa	4,510	10	13.3	−12.2	42	10	−21	25	40	1.58	+ 0.93	0.37	17.5	11	14	3	14		San Juan W. & P. Co.
Gladstone	San Juan	10,400	3																	E. A. O'Neil.
Glenwood Springs (near)	Garfield	5,823	11	14.6	−11.7	40	1	−22	18	43	1.06	− 0.41	0.28	22.0	10	8	6	17	n.	U. S. Weather Bureau.
Grand Junction	Mesa	4,608	18	17.1	−11.1	43	1	−15	25	35	0.67	+ 0.26	0.24	9.9	10	12	6	13	nw.	Mrs. Belle Kauffman.
Grand Lake	Grand	8,153									2.67		0.64	25.2	7	19	4	8	w.	David Evans.
Grand Valley	Garfield	5,089	17	17.0	− 8.1	53	24	−15	25†	57	2.17	+ 1.25	0.65	24.5	13	9	7	14		Clarence Adams.
Gunnison	Gunnison	7,670	16	1.5	−11.3	40	1	−38	19	47	1.93	+ 1.39	0.80	24.3	11	9	18	4		C. W. Harkness.
Hayden	Routt	6,337																		John S. Spear.
Hesperus	La Plata	8,870	11																	Lawrence J. Finch.
Horsefly	Montrose	8,700																		Elizabeth Schalles.
Ignacio	La Plata	6,425																		P. H. Foley.
Ironton	Ouray	10,000									3.57		0.56	48.6	19	12	7	12	sw.	H. A. Howe.
Kremmling (near)	Grand	7,337	1	9.2		49	31	−42	18	49	2.63		0.77	34.0	10	7	14	10		W. H. Ogle.
Lake City	Hinsdale	8,686	4	12.1		42	2†	−29	19	56	1.19		0.35	12.5	9	14	11	6		A. G. Wallihan.
Lay	Routt	6,190	15	10.1	− 9.4	39	31	−36	18	47	1.15	+ 0.20	0.40	18.0	9	11	2	18	sw.	T. T. Richards.
Lujane	Montrose	6,620	3	17.4		49	31	−15	19	38	1.22		0.30	14.8	9	12	14	5	se.	B. M Krumpanitzky.
Mancos	Montezuma	6,960	10	18.4	− 9.0	45	1	−14	24	46	1.92	+ 0.77	0.30	21.1	11	15	5	11	sw.	Homer Harrington.
Marble	Gunnison	7,951		14.9		45	30	−29	18	52	4.13		1.00	46.2	17	12	10	9	e.	William D. Lillard.
Marshall Pass	Saguache	10,846	6								1.49		0.38	11.9	6	8	21	2	w.	T. Baker.
Meeker	Rio Blanco	6,182	17	13.2	− 6.8	45	31	−30	18	40	1.04	− 0.17	0.56	16.0	10	10	7	14	sw.	R. Butterfield.
Montrose (near)	Montrose	5,811	20	13.8	−13.8	50	2	−14	19†	40	1.62	+ 0.57	0.33	11.5	11	12	11	8		Arthur Hanthorn.
Nast	Pitkin	7,953		9.7		36	9	−29	18	38	1.84		0.64	22.8	6	10	9	12	w.	Shaw Brothers.
Pagoda	Routt	6,500	18	12.7	− 8.6	45	31	−29	18	42	2.54	+ 0.97	0.48	49.0	10	14	3	14		E. T. Walker.
Pagosa Springs	Archuleta	7,108	2	10.8		39	1	−35	19	58	3.04		0.63	34.5	13	13	5	13		J. M. Underwood.
Paonia	Delta	5,694	8	18.4		40	2	−12	27	35	2.88	+ 2.00	0.75	30.5	11	8	12	11	sw.	F. A. Field.
Parshall	Grand										1.17		0.50	24.0	6					Mrs. Maggie Cammann.
Pitkin	Gunnison	9,500									2.27		1.00	27.5	8	16	11	4		Mrs. C. P. Hill.
Rangely	Rio Blanco	5,050	10	5.4	−11.5	39	8	−30	18	44	1.21	+ 0.57	0.40	19.8	9	11	4	16	w.	Dorothea Greiner.
Redcliff	Eagle	8,695	14								2.68	+ 0.74	0.90	31.5	9	11	4	16		Clinton B. Smith.
Rico	Dolores	8,824	8								3.55		0.61	53.0	14	13	10	8	n.	J. Dill.
River Portal	Montrose	6,570	3	16.8		49	31	−11	18	30	1.55		0.26	16.7	14	7	7	17		W. F. Irving.
Sapinero	Gunnison	8,125	9	10.2		42	31	−27	19	37	2.65		0.40	31.8	17	10	6	15	w.	W. S. Park.
Silt	Garfield	5,441	13																	V. E. Kerr.
Silverton (1)	San Juan	9,285	5								3.28		0.80	65.6	15	12	6	13	sw.	San Juan P. & W. Co
Silverton (2)	do	9,400	3	10.0		40	29	−25	4†	50	3.09		0.70	48.0	12					H. J. Wills.
Spruce Lodge	do	9,600	1								2.83		0.78	27.2	10	18	3	10		M. Elliot Houston.
Steamboat Springs	Grand	6,683		9.2		41	1	−44	18	46	2.65		0.70	29.0	13	18	0	13		San Juan P. & W. Co.
Tacoma	Routt	7,300	3	16.5		44	2	−10	26	43	3.78		0.80	44.7	13	18	5	8	n.	Do.
Terminal Dam	La Plata	8,300	3								5.69		0.98	62.0	12	9	12	10	sw.	Martin Esser.
Uncompahgre Plateau	do	8,400									5.50		0.90	22.0	3	17	9	5	s.	C. E. Macy.
Whitepine	Montrose	9,500	8	6.2		32	1	−27	18	46	1.52		0.43	20.6	13	6	18	7	s.	Percy A. Hughes.
Yampa	Gunnison	8,000									1.29									
Utah.	Routt																			
Aneth	San Juan	4,800	8								3.45		0.80	42.5	8	15	0	16	s.	Maude A. Palmer.
Baker	do	7,560									4.91		1.00	52.0	11	12	10	9	nw.	E. H. Wolf.
Basin	Grand	9,500									2.08		0.55		6	9	10	12		James Jeffs.
Castle Dale	Emery	5,500	10	8.1		38	1	−35	24	50										H. J. Cooper.
Dragon	Uinta		1																	U. S. Forest Service.
Dyer Mountain	do	10,000																		Do.
Elkhorn	do	7,000																		H. C. Wickman.
Emery	Emery	6,260	9	11.5	− 9.9	56	3	−15	19	60	1.70		0.40	17.0	6	6	4	21	n.	Geo. H. Barney.
Escalante	Garfield	5,700	9																	Joesph T. Atkin.
Experiment Station	Washington	2,880	5																	H. Curtis.
Fort Duchesne	Uinta	5,000	21	4.8	−13.6	38	2	−27	18	33	0.66	+ 0.11	0.20	5.8	7	13	6	10	nw.	Joseph A. Lyman.
Grayson	San Juan	5,750	5	19.8	−10.3			−10	14		6.43	+ 3.88	1.00	35.0	13	13	3	15	s.	B. F. Miller.
Green River	Emery	4,080	12	13.8	−11.3	50	2	−23	18†	40	0.62	+ 0.31	0.18	4.6	5	22	2	7		John P. Hite.
Hite	Garfield	3,000	10	15.8		64	2	− 1	26	34	2.27	+ 1.85	0.70	9.0	5	8	10	13	w.	W. T. Dobson.
Kanab	Kane	4,925	16																	Gertrude W. Carpenter.
La Sal	San Juan	7,000	9	16.8		39	31	−11	18	35	2.20	+ 1.57	0.97	26.0	2	14	5	12		Michael Hansen.
Los	Wayne	7,000	17	11.8	− 9.7	46	1	−26	18	41	0.90	+ 0.59	0.30	9.0	4					J. A. Gardner.
Mill Canyon	Washington	8,400									2.00		1.10	18.0	5					Henry Crouse.
Moab	Grand	4,000	20	19.5	−11.5	52	2	−10	27	30	2.02	+ 1.28	0.60	18.0	8	13	5	13		D. B. Perkins.
Monticello	San Juan		1																	J. W. Seaman.
Ranch	Kane	6,700	8	16.7		51	1	−16	18	43	4.89		1.95		10	18	2	11	n.	Jas. G. Bleak.
St. George	Washington	2,880	28	29.0	− 9.2	53	1	− 4	25†	28	1.93	+ 1.04	0.39		5					O. E. Jorgensen.
Scofield	Carbon	7,625	1	11.2		40	4	−35	17	65	3.31		1.67	20.0	5	23	2	6		Wm. W. Flanigan.
Springdale	Washington		2																	U.S.Reclamation Service
Strawberry Valley	Wasatch		3	15.2		41	29	−12	18	31	5.00		0.90	50.0	12	9	9	13		Henry Cullum.
Sunnyside	Carbon	4,280	1								1.00		0.40	10.0	4					

TABLE 1.—*Climatological data for December, 1909. District No. 9*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.					Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	
Utah—Cont'd.																				
Teasdale	Wayne	7,000	1								0.97		0.20	9.7	11	12	9	10		Josiah Shurtz.
Theodore	Wasatch	5,507	4	5.1		35	2	−34	18	45	3.62	+ 3.19	1.10	34.0	8	13	7	11	nw.	L. Claire Winslow.
Tropic	Garfield	7,000	12	21.2	− 7.7	54	1	−15	26	43	0.86	+ 0.22	0.25	8.7	7	14	1	16		E. P. Bolton.
Vernal	Uinta	5,380	14	6.5	−11.4	35	2	−18	18†	39										Joab Collier.
Wellington	Carbon	5,540	10	− 4.7	−18.9	32	1	−30	18	43	2.30		0.60	23.0	5					Melville Branch.
New Mexico.																				
Blackrock	McKinley		2	23.0		53	1	−21	19	52	0.77		0.40	10.4	7	14	10	7	e.	Wm. J. Oliver.
Bloomfield	San Juan	5,500	13	17.2	−10.3	56	2	−18	27	44	0.67	+ 0.08	0.10	11.7	10	11	9	11	sw.	Fred Le Clerc.
Cambray	Luna	4,215	11								0.60	+ 0.05	0.40	8.0	2	21	10	0		Agent, Southern Pac. Ry.
Cliff	Grant	4,470	11	36.3	− 4.2	67	13†	3	5	44	0.50	− 0.56	0.30		2					T. J. Clark, sr.
Columbus	Luna	4,054									1.06		0.40	9.0	3	16	6	9	sw.	Agent, E. P. & S. W. R. R.
Deming	....do	4,333	33	37.0		68	3	9	19	46	0.70	+ 0.05	0.70	7.0	1	23	0	8	w.	Agent, Southern Pac. Ry.
Dulce	Rio Arriba	6,767	3																	W. A. Fuller.
Fort Bayard	Grant	6,152	35	34.5	− 4.8	63	31	12	6	39	0.90	+ 0.04	0.45	13.5	7	21	4	6	w.	U. S. A. Gen'l Hospital.
Fort Wingate	McKinley	6,997	46	24.4	− 7.3	51	29	−11	19	47	0.87	− 0.12	0.20	9.5	6	9	7	15	sw.	Medical Corps, U. S. A.
Frisco	Socorro	5,800	3			51	31	−15	19					21.0	3°	9°	4°	3°	sw.°	John R. Milligan.
Fruitland	San Juan	4,800	17	18.0	−11.4	54	2	−17	27	35	0.94	+ 0.54	0.24	9.5	9	17	4	10	nw.	Cyril Jas. Collyer.
Gage	Luna	4,486	3			70	9				0.45	− 0.05	0.27	5.0	2	6	17	8	w.	Agent, Southern Pac. Ry.
Hachita	Grant	4,504									0.91		0.65	5.0	3	7	16	8	w.	Agent E. P. & S. W. R. R.
Hermanes	Luna	4 451									1.00		0.74	10.0	2					Do.
Lordsburg	Grant	4,245	10	38.8	− 4.7	73	31	3	5	47	0.40	− 0.22	0.40	4.0	1	16	0	15	e.	Agent Southern Pac. Ry.
Luna (near)	Socorro	7,300	5	24.7		55	1	−26	19	59	1.67		0.80	15.0	8	8	20	3	s.	C. B. Martin.
Manuelito	McKinley	6,252	5	23.2		52	1†	−24	27	56	1.18		0.52	16.5	4	14	3	14	e.	W. A. L. Tarr.
Mimbres	Grant	5,007	3								0.78		0.48		3	13	11	7	nw.	Charles Dennis.
Pratt	....do	4,415									0.18		0.18	2.0	1	20	7	4	w.	Agent, E. P. & S. W. R. R.
Redrock	....do	4,150	5								0.62		0.30	4.0	3	19	8	4		Robt. H. Woods.
Rodeo	....do	4,118	1								0.75		0.50	6.8	3	24	3	4		Agent, E. P. & S. W. R. R.
Rosa	Rio Arriba	6,000	5																	B. A. Candelario.
Arizona.																				
Allaire's Ranch	Cochise	4,184	13								0.46	− 0.33	0.20	1.5	5	17	4	10	nw.	Thos. Allaire.
Arizona Canal Dam	Maricopa	1,372		49.8	− 1.1	72	30	25	4	30	0.92	− 0.06	0.59	0.0	5	12	4	15	ne.	U. S. Reclamat'n Service.
Aztec	Yuma		492	9	46.0	− 8.6	73	2	20	21†	42	0.93	+ 0.29	0.79	0.0	4	15	0	16	n.	Agent, Southern Pac. Ry.
Benson	Cochise	3,523	26	45.0	− 4.4	75	30	11	5	48	0.68	+ 0.14	0.48	T.	2	8	7	16	e.	Do
Bisbee	....do	5,500	19	43.2	− 2.5	67	31	21	5	30	1.50	+ 0.40	0.65	5.5	5	18	5	8	w.	Rev. J. G. Pritchard.
Bonita	Graham	4,916	30								0.60	− 0.61	0.40	4.0	3	21	2	8	w.	A. Johnson & Co.
Bowie	Cochise	3,756	9	41.4	− 5.3	70	1†	13	5	36	0.78	− 0.36	0.38	4.0	4	12	0	19	e.	Agent, Southern Pac. Ry.
Buckeye	Maricopa	980	17	47.5	− 3.6	74	30	19	19	43	1.42	+ 0.51	0.90	T.	5	9	16	6	e.	H. E. Kell.
Casa Grande	Pinal	1,396	28	47.2	− 6.4	75	9	13	6	37	0.41	− 0.34	0.26	0.0	5	13	10	8		Agent, Southern Pac. Ry.
Casa Grande Ruins	....do	1,422	1	48.0		79	9	16	5	45	0.42		0.32	0.0	5	16	4	11	w.	F. Pinkley.
Cavecreek	Maricopa	1,520	2	46.8		75	30†	18	19	45	1.15		0.35	2.0	4	14	8	9		E. R. Howard.
Chin Lee	Apache	6,090	1	21.3		57	1	−19	27	43	1.43		0.79	9.2	9	14	5	12	n.	Fr. L. Osterman, O. F. M.
Chlarsons Mill	Graham	8,000	4	30.5		60	30	2	25	42	3.49		1.05	32.0	5	10	11	10		H. R. Chlarson.
Clifton	....do	3,584	17	42.9		66	2	23	5	29	0.71	− 0.48	0.25	1.6	5	15	13	3		W. B. Cramer.
Cline	Gila	2,300	8	43.8	− 2.3	71	31	19	19	36	2.51	+ 0.70	0.78	5.0	6	12	7	12	sw.	W. M. Clanton.
Cochise	Cochise	4,219	11								0.93	+ 0.21	0.55	9.0	3					Agent Southern Pac. Ry.
Columbia	Yavapai	1,900	9	47.4	− 4.6	72	30	24	4†	34	3.41	+ 1.61	2.35	3.0	5	5	17	9	se.	M. J. Nolan.
Congress	....do	3,688	13	43.8	− 7.7	65	30	26	6	22	2.88	+ 1.65	1.54	7.1	7	14	6	11	sw.	Assayer, Congress Mine.
Dos Cabezos	Cochise	5,250	1	40.6		68	31	9	5	41	0.95		0.38	7.0	4	19	5	7	w.	N. Erickson.
Douglas	....do	3,930	6	44.8		77	31	6	5	51	0.99		0.65	4.0	5	20	5	6	sw.	Dr. F. T. Wright.
Dudleyville	Pinal	2,204	18																	G. F. Cook.
Flagstaff (1)	Coconino	6,907	17	22.1	− 6.3	52	30	−12	24	59	2.98	+ 1.03	1.21	30.7	12	13	5	13	sw.	U. S. Weather Bureau.
Flagstaff (2)	....do	7,452	4																	C. C. Moers.
Flagstaff (3) §	....do	7,500	1	20.0		58	30	−22	24	67	3.19		2.04	30.4	5	10	11	10	e.	U. S. Forest Service.
Florence	Pinal	1,504	9	42.5	− 8.9	80	31	19	7	48	0.40	− 0.98	0.22	0.0	6	11	14	6		Agent, P. & E. R. R.
Fort Apache	Navajo	5,200	30	34.2	− 3.2	69	31	4	19	52	1.03	− 0.47	0.28	11.1	5	14	12	5	s.	Post Surgeon.
Fort Huachuca	Cochise	5,100	23	44.4	− 1.6	69	1†	20	5	49	1.79	+ 0.74	0.70	9.0	4	23	0	8	se.	Do.
Fort Mohave	Mohave	604	20																	A. F. Duclos.
Gilabend	Maricopa	737	18	49.4	− 3.9	75	1†	22	18	39	0.62	− 0.07	0.45	0.0	3	12	12	7	sw.	Agent, Southern Pac. Ry.
Globe	Gila	3,525	8	41.4		68	29	18	19	35	1.21		0.55	7.0	8	6	15	10	se.	Dr. B. G. Fox.
Grand Canyon (1)	Coconino	6,866	5	21.0		53	30	−10	24†	50	3.70		1.35	38.9	9	10	7	14	w.	Agent, Santa Fe R. R.
Grand Canyon (2)	....do	3,676	2	31.2		56	1	8	27	20	4.55		1.68	22.0	10	13	5	13	sw.	C. C. Spaulding.
Greer	Apache	9,200									1.65		0.40	17.0	8	16	7	8	n.	Mrs. M. Butler.
Holbrook	Navajo	5,069	18	31.0	− 3.5	66	31	− 1	19	42	1.27	+ 0.55	0.35	13.4	6	12	9	10	sw.	Thorwald Larson.
Intake	Gila	2,230	4								0.48		0.28	3.0	3	12	9	10	ne.	A. H. Neal.
Jerome	Yavapai	4,743	12	36.2	− 6.9	57	1†	17	19	22	1.88	+ 0.42	0.63	9.2	5	14	7	10	w.	Dr. L. A. Hawkins.
Keams Canyon	Navajo		4	22.8		53	1	− 8	27	40	2.15		0.52	16.9	11	11	14	6	n.	L. R. Ballard.
Kingman	Mohave	3,326																		G. R. Gooding.
Maricopa	Pinal	1,186	29																	Agent, Southern Pac. Ry.
Mesa	Maricopa	1,244	14	48.1	− 2.7	76	30†	21	3†	36	0.87	− 0.11	0.54	T.	6	10	11	10	ne	C. L. Diehl.
Mohawk Summit	Yuma	538	9																	Agent, Southern Pac. Ry.
Natural Bridge	Gila	4,990	20								2.76	+ 0.72	0.65	14.0	8	12	10	9	sw.	D. G. Goodfellow.
Nogales	Santa Cruz	3,830	5																	Wallace & Summerhayes.
Oracle	Pinal	4,500	19																	W. H. Winters.
Paradise	Cochise	3,940	2	38.6		74	31	2	20	43	1.23		0.85	9.5	3	7	13	11	nw.	J. C. Hancock.
Parker	Yuma	345	11																	Dr. H. K. Marshall.
Payson	Gila	5,500	1	34.7		64	1	4	27	54	3.12		1.55	22.0	6	12	2	17	s.	M. McDonald.
Phœnix (1)	Maricopa	1,108	14	48.1	− 3.8	70	30	25	5	32	1.02	+ 0.43	0.48	T.	5	14	11	6	w.	U. S. Weather Bureau.
Phœnix (2)	....do	1,092	18	47.0	− 3.3	79	2	22	5†	40	1.09	+ 0.30	0.43	T.	4	10	17	4	sw.	G. Acuff.
Phœnix (3)	....do	1,189	1	49.2		73	31	25	4	36	1.14		0.59	0.0	3	16	3	12	sw.	J. A. Ream.
Pinal Ranch	Pinal	4,520	15								2.05	− 0.42	0.67	11.0	6	12	10	9	s.	Irion & Craig.
Pinto	Apache	5,660	5								1.45		0.45	14.5	4	15	9	7	sw.	Mrs. C. F. Henning.
Prescott	Yavapai	5,320	28	32.6	− 4.2	59	1	1	19†	47	2.28	+ 0.69	0.98	22.1	5	17	6	8		Dr. J. W. Flinn.
Quartzsite	Yuma	800	2	45.2		73	2	17	19	38	1.13		0.62	0.0	3	11	11	9	sw.	W. E. Scott.
Redrock	Pinal	1,856	2	50.1		81	31	26	4†	36	0.29		0.13	0.0	4	6	21	4	w.	W. J. Crowell.
Roosevelt	Gila	2,175	4	46.0		69	1	27	19	33	1.76		0.94	1.5	5	15	10	6		Wm. A. Schoenfeld.
Sacaton	Pinal		2	48.2		76	31	17	19	42	0.62		0.50	0.0	3	15	6	10		E. W. Hudson.
St. Johns	Apache	5,650	4	28.6		64	31	− 4	19	40	2.19		0.94	23.4	10	8	13	10		Alex. Shreeve.
St. Michaels	....do	6,950	13	18.2	− 7.9	46	2	−19	19	39	1.66	+ 0.72	0.88	17.2	8	10	10	5	sw.	Rev. A. Weber, O. F. M.
Salome	Yuma	880	2	41.4		69	31	18	20	33	2.63		0.87	1.0	6	8	13	10	e.	Agent, A. & C. R. R.
San Carlos	Gila	2,456	19	42.6	− 2.3	72	2	13	5	41	0.88	− 0.48	0.36	T.	5	11	6	14	w.	F. S. Thomas.
San Simon	Cochise	3,609	24	41.7	− 5.6	68	10	15	5	45	0.47	− 0.04	0.39	4.0	2	11	12	8	w.	Agent, Southern Pac. Ry.
Seligman	Yavapai	5,219																		C. W. Dougherty.
Sentinel	Maricopa	885	11	48.4	− 5.6	70	6†	22	19	43	0.51	+ 0.13	0.25	0.0	4	15	9	7		Agent Southern Pac. Ry.
Showlow	Navajo	6,300	6																	Miss Z. Hall.
Silverbell	Pima	2,650	4																	Imperial Copper Co.
Supai	Coconino	3,200	2																	Chas. E. Coe.
Tempe	Maricopa	1,165	5	47.0		71	30	23	5	34	0.81		0.52	0.0	5	18	6	7	ne.	F. H. Simmons.

TABLE 1.—*Climatological data for December, 1909. District No. 9*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Arizona—Cont'd.																			
Thatcher	Graham	2,800	....	40.8	.....	70	2	12	5	42	0.45	.....	0.15	3.0	5	8	18	5	se.	Prof. J. H. Larson.
Tombstone	Cochise	4,550	14	45.1	−11.5	76	31	19	3	41	0.93	+ 0.14	0.38	5.6	4	13	14	4	.....	F. N. Walcott.
Tuba	Coconino	4,500	9	21.7	−10.1	56	1	−12	28	37	1.54	+ 0.83	0.50	10.4	8	8	10	13	ne.	G. H. Kraus.
Tucson (1)	Pima	2,390	29	47.4	− 4.3	79	31	17	5	40	0.81	− 0.13	0.40	T.	5	1	22	8	nw.	University of Arizona.
Tucson (2)	.....do	2,380	1	45.1	.....	77	31	14	5	43	0.71	.....	0.48	0.0	2	19	6	6	nw.	H. G. Brown.
Upper San Pedro	Cochise	5,000	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	B. T. Stuart.
Vail	Pima	3,421	11	43.0	−10.3	72	31	13	5	41	0.32	− 0.24	0.32	0.0	1	10	10	11	e.	Agent, Southern Pac. Ry.
Walnut Grove	Yavapai	3,649	19	.....	.....	.....	.....	.....	.....	.....	3.08	+ 1.32	1.70	27.5	6	13	8	10	.....	J. O. Carter.
Wickenburg	Maricopa	2,072	2	47.4	.....	71	31	23	5	33	0.83	− 0.96	0.45	0.0	6	14	9	8	s.	Agent, P. & P. R. R.
Willcox	Cochise	4,164	29	38.6	− 4.7	65	1†	3	5	45	0.50	− 0.20	0.20	4.0	3	10	9	12	n.	Agent, Southern Pac. Ry.
Williams	Coconino	6,750	10	27.4	.....	57	1	− 2	26	49	3.37	.....	1.85	36.9	8	15	3	13	ne.	H. Victor.
Winslow	Navajo	4,853	1	29.9	.....	70	1	1	19	46	1.74	.....	0.60	14.5	8	14	0	17	.....	L. C. Henning.
Yarnell	Yavapai	4,700	11	.....	.....	.....	.....	.....	.....	.....	2.96	+ 1.40	1.85	29.0	5	14	5	12	e.	E. L. Bartholomew.
Yuma (1)	Yuma	141	30	50.3	− 5.2	74	2	26	4	34	0.46	− 0.02	0.36	0.0	3	17	6	8	n.	U. S. Weather Bureau.
Yuma (2)	.....do	150	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. L. Crane.
Nevada.																				
Caliente	Lincoln	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Las Vegas	Clark	2,033	2	35.5	.....	60	1†	12	19†	36	1.05	.....	0.65	15.0	5	8	0	23	nw.	Agent, Salt Lake Route.
Logan	.....do	1,700	3	37.6	.....	60	1	19	9	33	1.80	.....	0.60	6.0	9	16	7	8	n.	Roy M. Filcher.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Separate dates of fall not recorded.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
¶ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for December, 1909. District No. 9, Colorado Valley.*

Stations.	River basins	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Wyoming.																																	
Daniel	Green	T.	.20	.10	T.	T.	T.	T.	.10	.20			T.				T.					T.									.10	0.70
Dixon	do																															
Eden	do		.18			.06		.02	T.	.03	.60						T.			.03	T.		.08								.10	1.10
Fontenelle	do																															
Green River	do		.12			T.		T.			.03			T.			.07						T.									0.22
Kendall	do																															
Pinedale	do		.06	.04		.03		.03	.01	.09	.09																				.03	0.38
Willow Creek Cabin	do																															
Colorado.																																
Ashcroft	Grand	.20	1.00	.16	.07	.10		.03		T.	.20			.20	.06			.05						.09	.05			T.			.20	2.41
Breckenridge	do	.70	.33	.10		T.	T.	T.			.05	T.	T.	.08	.03		T.							.03		T.	.03			T.	1.35
Cascade	San Juan		1.00	.40	.60			.50	.60	.30	.65		.50									.17	.34	.49	.24					1.14	6.93
Chromo	do		.19	.19	.10		.32	.05		.03	.27											.12	.23						.07		1.57
Cochetopa	Gunnison		.12	.04							.05				T.		T.													.05	0.26
Collbran	Grand	.04	.35	.07	.25	.01	.07	T.	T.	.04	.20	.01		.03	.10		T.				.01		.03	.36	.22						.10	1.89
Columbine	Yampa	.10	1.20	.07		.13	.28	.13	.14	.16	.62			.14	.18		.10						.98		.13	.17	.27	.05			.72	5.57
Columbine Ranch	Gunnison	T.	.60	.15	.35	.20	.45	.35		.09	.07			.30									1.00	1.40	.20						.34	5.50
Corona	Grand	.10	.74	.58	.08		.22	.06	.10		.04	.14				.10	.38	.30							.06			.66	.08	.04		3.68
Crawford	Gunnison	.02	.24	.12	.08	.02	.06	.02		.05	.02			.20	.02		.08	.02					.04	.14	.10						.11	1.34
Crested Butte	do	.80	.60	.35	.25	.05	.05		.60	.40													.50				T.				1.85	5.45
De Beque	Grand																															
Delta	Gunnison		.30		.03	T.	.18			.12	.17			.02	.02		T.	T.				T.	*	.83						.04	1.71
Dillon	Grand	2.34	.04	T.							T.						.71	.33	T.	T.	T.	T.	.55	.17	T.	T.				.18	T.	4.32
Dolores	Dolores																															
Dunkley	Yampa																															
Durango	San Juan	.06	.49	.09		.23	.19	.09		.34	.17							T.			.02	.88	.59	.33							.33	3.81
Eagle	Grand																															12.05
Eureka	San Juan																															
Frutta	Grand	T.	.37	T.		.02	.08	.01		.20	.26			T.			T.				.01	T.	.10	.25	.03						.25	1.58
Gladstone	San Juan																															
Glenwood Springs	Grand		.20	.28	.06					.02	.05			.10	.05									*	.20						.10	1.06
Grand Junction	do	T.	.16	T.		.03	.05	T.		.01	.04			T.	T.						T.	.01	.06	.21	.04						.06	0.67
Grand Lake	do		.64	T.	T.	T.	T.	T.	T.	.55	T.			.45									.25	.15			.15				.48	2.67
Grand Valley	do	.02	.65	.03		.08	.11	T.	.02	.08	.30			T.	.04						T.	T.	.14	.32	.30						.08	2.17
Gunnison	Gunnison		.29	.16		.12	.15	.02			.07			.02				.07						.14	.09						.80	1.93
Hayden	Yampa																															
Hesperus	San Juan																															
Horsefly	Gunnison																															
Ignacio	San Juan																															
Ironton	Gunnison	.18	.31	.27	.32	.02	.17	.08		.03	.33	.11		.56	.18		T.	.01				.02	.18	.08	.30					*	.42	3.57
Kremmling	Grand	.10	.77	.47			.13			.15						T.	T.		.07		T.	.07		.62	T.		.15			*	.10	2.63
Lake City	Gunnison	T.	.23	.24	T.			.11	T.	.07	.05	.02		.09				T.				T.			.03						.35	1.19
Lay	Yampa	T.	.40	.07		T.	.02	T.		T.	.25				.09		.06			T.	.03	T.	.03	.20						T.	1.15
Lujane	Gunnison		.18	.25	.27	T.					.13			.02	.01		.03	T.					T.	.03	.30							1.22
Mancos	San Juan		.30	.27	.14	.02	.26	.06		.06	.32											.16		.05							.28	1.92
Marble	Grand	.10	1.00	.12	.18	.09	.03	T.		.02	.50		*	.24	.06		.02				.01	*	.24	.54							.98	4.13
Marshall Pass	Gunnison		.38	.22							.19				.18									T.				.35		.17	1.49
Meeker	White	*	*	*	.56		.05							T.	.03							*	*	*	.40						T.	1.04
Montrose	Gunnison	.01	.33	.22		.23				.07					.05		.03						.11	.21	.33						.03	1.62
Nast	Grand	.22	.64	.22	T.			T.			.18		.27	T.		T.							T.								.31	1.84
Pagoda	Yampa	.10	.26	.07							.45	.14		.20	.45	.24							.15	.48								2.54
Pagosa Springs	San Juan		.63	.37	.11		.29			.18	.21								.06	.08		.14	.41	.30	.11						.15	3.04
Paonia	Gunnison	.03	.50	.15	.30	.20		T.		.10				.13			T.						.12	.75	.30						.30	2.88
Parshall	Grand	.50			.12		.18							.14										.13	.10							1.17
Pitkin	Gunnison	T.	.70	.10		.10	.11		T.		.10			T.									.05	.11							1.00	2.27
Rangely	White																															
Redcliffe	Grand	.15	.90	T.	T.	.30				*	.70			.20	.18	T.						T.	T.		.17		.08	T.				2.68
Rico	Dolores	T.	.51	.26	.06	.03	.23	.15		.18	.54			.04								.03	.29	.50	.12						.61	3.55
River Portal	Gunnison	.12	.26	.09	.04	.25	.04			.26			.06	.02			.08					.07	.07	.08						.11		1.55
Sapinero	do	.03	.30	.19	.08	.04	.29	.10		.11	.24	.04		.11	.18		.04						.20	.19	.11						.40	2.65
Silt	Grand																															
Silverton (1)	San Juan																															
Silverton (2)	Grand	.09	.31	.30	.20	.03	.10	.24		.80			.06	.15									.26	.23	.28					*	.23	3.28
Spruce Lodge	do	.24	.70				.31	.11			.12	.16		.17	.20		.26							.29		.23	.30					3.09
Steamboat Springs	Yampa		.78	.21		.25		.16		.42				.25		.10							.48		.08					.10	2.83
Tacoma	San Juan		.40	.08	.03	.04	.03	.09		.11	.32											.12	.43	.24	.06						.70	2.65
Terminal Dam	do		.53	.28	.19	.05	.18	.05		.11	.56						T.					.09	.80	.42	.20						.32	3.78
Uncompahgre Plateau	Gunnison		.98	.71	.58	.34	.38	T.		.36	.48	T.										.22	.68	.72	.17						.07	5.69
Whitepine	do		.90								.25																				.37	1.52
Yampa	Yampa	.14	.43	.03	.05		.03			.05	.06			.07	.03		.05						.15			.02	T.				.18	1.29
Utah.																																
Aneth	Colorado																															
Baker	do			.28			.25		.25	.80												.28	.50	.56							.50	3.45
Basin	Grand	.08	1.00			.30	.18			.60	.50				.16							.46	.51	.52							.60	4.91
Castle Dale	Green		.25			.30				.53												.20	.25								.55	2.08
Dragon	do																															
Dyer Mountain	do																															
Elkhorn	do																															
Emery	Colorado		T.			.40		.40		.30											.30	.10	.20							T.	1.70
Escalante	do																															
Fort Duchesne	Green	.20	T.		T.	.10		T.		.11	T.		T.			T.	T.	T.			.05	.03	.10							.07	0.66
Grayson	San Juan		1.00			*	.65		*	.56	*	.50									*	*	*	3.50	.20						.22	6.63
Green River	Green	T	T.			T.	.08	.08		.18	.14											14	T.								0.62
Hite	Colorado		.15				.10	.13		.29												.30	.10	.50							.70	2.27
Kanab	do																															
La Sal	Grand	T.	T.				.90	T.	T.		.97										T.		.33									2.20
Loa	Colorado		.20					.30		.20													.20									0.90
Mill Canyon	do						.22			.40												.28							*	1.10	2.00
Moab	Grand		.33				.10	.02		.57												.10	.20	.60							.10	2.02
Monticello	do																															
Ranch	Colorado		.56			.32	.12	.06		1.05	.04											T.	.54	.10	.19						1.95	4.89
St. George	do		.02			.20			.04	.39												.15	.40	.15						.21	.37	1.93
Scofield	Green						.62	.37		.40	.25																				1.67	3.31
Springdale	Colorado																															
Strawberry Valley	Green	.45	.60			.25	.20			.75	.65	.30		.35	.25								.20		.10						.90	5.00
Sunnyside	Green	T.	.40	T.	T.	T.	T.	T.	T.	T.												.10	.20	.30							1.00	
Teasdale	Colorado																															
Theodore	Green	.10	.20	T.		.10		.02		.08	.15						.06	.06			.05	.05	T.	T.							.10	0.97
Tropic	Colorado		.22			.10	.30	.40					.10								T.	1.10	.50								1.10	3.62
Vernal	Green	*	.25				.05			.13							.02			.05		.17									.19	0.86
Wellington	do	.40				.40		.30		.60																					.60	2.30
New Mexico.																																
Blackrock	Little Colorado			.20		.05	.40	.02	.01	T.	T.												T.	.01	.08							0.77
Bloomfield	San Juan		.09	.10		.10		.05	T.	.04	.09											.04	.06	.06		.04					T.	0.67

TABLE 2.—*Daily precipitation for December, 1909. District No. 9*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
New Mexico—Cont'd.																																	
Cambray	Mimbres																		.20	.40													0.60
Cliff	Gila						.20																	.30									0.50
Columbus	....do						T.				T.							T.	.30	.40			T.	.36									1.06
Deming	....do																T.	T.	.70														0.70
Dulce	San Juan																																
Fort Bayard	Mimbres	.02	.03				.15			T.							.08	.37			T.		*	.25									0.90
Fort Wingate	Little Colorado		.20					.18			.18							.09					.18	.04									0.87
Frisco	Gila																																
Fruitland	San Juan		T.	.02	.15	*	.09	.06		*	.20											.24	.18								T.		0.94
Gage	Gila																	*	.27				*	.18									0.45
Hachita	....do																	*	.65					T.	.26								0.91
Hermanes	....do																		.74	.26	T.		T.	T.									1.00
Lordsburg	....do																		.40														0.40
Luna	....do			.10			.20	T.	T.		.17							.80	.10		T.	.10	.10	.10									1.67
Manuelito	Little Colorado						.09		.24													.33	.52										1.18
Mimbres	Mimbres			.30														*	.48														0.78
Pratt	Gila																		.18														0.18
Redrock	....do		.10																	.30				.22									0.62
Rodeo	....do																		.50	.05				.20									0.75
Rosa	San Juan																																
Arizona.																																	
Allaires Ranch	Sonora					.02												.20	.12			.01	.11										0.46
Arizona Canal Dam	Salt						.59			.01												.18	.12		.02								0.92
Aztec	Gila					.03				.09												.79		.02									0.93
Benson	San Pedro			T.															.48					.20									0.68
Bisbee	....do																		.65	.14				.46	.18				.07				1.50
Bonita	Mimbres						.08					.40											.12										0.60
Bowie	Gila						.05												.38					.30	.05								0.78
Buckeye	....do					.25	.11			.06												.90									.10		1.42
Casa Grande	....do						.26		.04													.01	.06	.04									0.41
Casa Grande Ruins	....do						.32			.02												.02	.03	.03									0.42
Cavecreek	Verde						.20		.32													.28	.35										1.15
Chin Lee	San Juan		T.	.04			T.	.06	.08	.10	.03										.06	.79	.07		.20						T.		1.43
Chlarsons Mills	Gila						1.02				.62									1.05	.20			.60									3.49
Clifton	....do			.03			.15							T.					.12			T.		.25				.16					0.71
Cline	Salt						.55			.15	.15											.75	.78	.13									2.51
Cochise	Desert													.55					.28					.10									0.93
Columbia	Agua Fria			.01			.30	T.		.65											2.35		.10										3.41
Congress	Hassayampa		T.			T.	.33			.41	.05										.40	1.54	.05	T.							T.	.10	2.88
Dos Cabezos	Desert						.27												.38	.02				.28									0.95
Douglas	Sonora																		.65	.14				.13	.04				.03	T.			0.99
Dudleyville	Gila																																
Flagstaff (1)	Little Colorado		.12	T.		.23	.02	.06	T.	.50	.23							.03			33	1.03	.07	.05		T.						.31	2.98
Flagstaff (2)	....do																																
Flagstaff (3)	....do		T.			T.	.45	.20	T.	.20	.30							T.			2.04	T.	T.	T.									3.19
Florence	Gila						.05													.03		.02		.04				.22	.04				0.40
Fort Apache	Salt	T.				.28				.07	.19							T.	.25			T.		.24									1.03
Fort Huachuca	San Pedro				T.		T.												.30	.58				.70	.21					T.			1.79
Fort Mohave	Colorado																																
Gilabend	Gila					.15			.02	T.									.45														0.62
Globe	Salt						.06			.01	.03	.01							.55	.25	.20	.10												1.21
Grand Canyon (1)	Colorado	.54			.45			.28		.25	.20								1.35	.28	.30										.25		3.70
Grand Canyon (2)	....do	.40	.07		.50			.30		.09	.43								1.68	.20	.60										.28		4.55
Greer	Little Colorado		.38		.20			.10			.10	.19						.40		.10	.18												1.65
Holbrook	....do				.20			.22		.28								.02			.20	.35											1.27
Intake	Salt						.28																.12	.08	T.								0.48
Jerome	Verde							.41		.34	.63										.30	.20	T.	T.									1.88
Keams Canyon	Little Colorado	T.	.03	.25		.05	.20			.12	.02					.52					.15	.50	.16	T.	.15									2.15
Kingman	Colorado																																
Maricopa	Gila																																
Mesa	Salt					.54				.04					T.						.02	.20		.02								.05	0.87
Mohawk Summit	Gila																																
Natural Bridge	Verde		.30				.40			.32	.34	.15										.50	.65	.10									2.76
Nogales	Santa Cruz																																
Oracle	San Padre																																
Paradise	Desert			T.			.03											T.		.85				.35									1.23
Parker	Colorado																																
Payson	Verde		.41				.41			.18	.20							T.				1.55	.37	T.									3.12
Phoenix (1)	Salt					.30	.16			.07					T.					T.	.43	.06	T.										1.02
Phoenix (2)	....do						.43			.09												.22	.35										1.09
Phoenix (3)	....do					.48				.07												T.	.59										1.14
Pinal Ranch	....do		.05			.65					.10												.22	.67	.36								2.05
Pinto	Little Colorado			T.	.45		.20			.40	T.				T.					T.				.40									1.45
Prescott	Hassayampa				T.	.20	T.			.49	.39										.22	.98	T.									T.	2.28
Quartzsite	Colorado									.31											.62	.20											1.13
Redrock	Santa Cruz						.07			.02								T.	.07			T.		.13									0.29
Roosevelt	Salt					.94				.20	.15											.40	.07	T.									1.76
Sacaton	Gila					.50																	.05	.07									0.62
St. Johns	Little Colorado					.35	.02	.06		.06	.05								.20		.40	.94	.01		.10									2.19
St. Michaels	....do	T.				.03	.08	.06		.14							T.	.04		T.	.88	.42	T.	.01									1.66
Salome	Colorado			T.	.10			.38							T.						.27	.87	.26							T.	.75	2.63
San Carlos	Gila		T.			.29				.10	.04								.09			T.	T.	.36									0.88
San Simon	....do						.08															.39											0.47
Seligman	Verde																																
Sentinel	Gila					.10	.04															.25	.12										0.51
Showlow	Little Colorado																																
Silverbell	Santa Cruz																																
Supai	Colorado																																
Tempe	Salt						.52			.06												.01	.11	.11	T.								0.81
Thatcher	Gila		.05					.10												.15					.10						.05		0.45
Tombstone	San Pedro																	.38	.18			.05	.32										0.93
Tuba	Little Colorado		.02	T.		.25	.06	.06	T.	.05	.50											.50	.10										1.54
Tucson (1)	Santa Cruz						.09					T.							.15	.10				.40	.07				T.				0.81
Tucson (2)	....do						.23					T.													.48									0.71
Upper San Pedro	San Pedro																																
Vail	Santa Cruz			T.															.32														0.32
Walnut Grove	Hassayampa		T.			.40	T.										.40	.03			.30	1.70	.25										3.08
Wickenburg	....do					.22				.05											.03	.45	.02									.06	0.83
Willcox	Desert						.20												.18					.12									0.50
Williams	Colorado				.28	.20	.03	T.	.04												.65	1.85		.10								.22	3.37
Winslow	Little Colorado		.10		.20	T.	.05		.25												.30	.60	.10	T.	T.							.14	1.74
Yarnell	Hassayampa									.40	.10										.50	1.85										.11	2.96
Yuma (1)	Colorado				T.		T.			.06											T.	.04										.36	0.46
Yuma (2)	.....do																																

TABLE 2—*Daily precipitation for December, 1909. District No. 9*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Nevada.																																	
Caliente	Colorado						.02	.20													.03	*	.65								.15	1.05
Las Vegas	....do		.31			*	.04	.02		.19	.06										.02	.52		.04							.60	1.30
Logan	....do																																

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 9, Colorado Valley.*

Date.	Wyoming.				Colorado.										Utah.										New Mexico.			
	Daniel.		Green River.		Durango.		Grand Junction.		Gunnison.		Meeker.		Steamboat Springs.		Emery.		Fort Duchesne.		Hite.		Moab.		St. George (Experiment station).		Fort Bayard.		Fort Wingate.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	35	15	56	29	43	28	43	33	40	15	36	15	41	21	50	11	32	19	53	35	50	30	53	30	56	35	50	28
2	26	− 1	34	9	36	30	43	32	35	22	40	15	36	16	51	13	38	23	64	34	52	32	47	29	44	20	46	33
3	16	−14	18	0	33	22	32	23	33	15	33	6	19	7	56	8	36	3	43	27	35	26	41	28	45	20	40	31
4	7	−18	8	−21	23	2	26	18	24	0	30	− 1	12	− 7	44	10	28	0	38	21	32	17	40	17	35	19	38	10
5	12	−23	28	−12	25	0	30	19	14	−18	23	− 8	22	−23	34	9	16	− 8	36	24	35	17	39	21	40	13	35	0
6	20	−17	19	− 4	33	1	30	15	18	4	25	3	20	9	37	7	21	− 6	41	21	37	19	38	16	36	12	38	12
7	19	−14	20	− 2	21	− 2	30	13	10	−17	31	5	18	1	45	− 1	28	− 7	35	27	36	19	36	18	45	18	35	11
8	30	9	29	10	27	− 2	36	20	21	−10	37	19	35	15	35	16	28	3	36	30	38	21	42	27	50	20	41	5
9	23	12	34	20	33	12	31	26	22	−10	40	24	31	2	32	10	29	10	36	27	36	27	42	31	50	25	40	7
10	26	− 2	35	6	37	9	34	16	28	−11	38	23	31	15	31	8	31	10	47	30	42	20	49	29	45	24	37	21
11	21	− 5	23	− 3	28	3	27	4	11	−20	25	− 4	23	15	32	9	21	−11	40	22	32	7	47	25	52	13	39	6
12	30	1	32	7	24	− 5	33	5	16	−20	30	− 9	19	−15	43	0	18	− 8	44	24	30	8	43	23	55	25	37	3
13	31	10	33	19	29	7	28	9	28	− 3	39	12	32	16	41	− 2	20	− 8	42	23	32	15	52	24	54	24	33	10
14	30	− 1	29	2	28	3	35	14	20	− 5	32	9	26	12	45	− 5	21	− 8	40	22	33	11	49	25	51	21	31	7
15	27	15	30	0	30	1	33	9	12	−24	24	−14	19	−17	41	− 6	19	−12	41	21	34	7	50	26	50	23	44	2
16	26	5	40	6	27	− 3	22	3	9	−25	24	− 8	21	−19	43	− 5	15	−11	40	17	29	6	49	20	48	35	39	7
17	10	−22	17	−11	23	6	24	5	7	−10	20	−19	10	−29	40	− 7	20	− 6	33	17	27	4	38	25	40	22	32	12
18	12	−19	− 3	−32	20	− 6	20	2	− 5	−31	7	−30	2	−44	40	1	− 2	−27	31	10	20	− 2	38	15	32	15	21	2
19	7	−30	4	−20	19	− 9	22	3	− 5	−38	18	−18	6	−30	45	−15	7	−22	28	11	20	− 2	40	13	33	16	28	−11
20	12	−15	13	− 8	25	2	19	8	4	−20	16	2	14	−19	30	− 6	11	− 3	25	11	24	4	37	19	25	14	30	− 1
21	10	−15	18	− 1	25	16	25	5	14	−22	22	− 2	11	−22	22	− 1	12	− 7	26	18	23	10	39	24	33	15	35	7
22	16	−20	16	−12	27	18	25	16	20	−10	17	−13	33	6	19	− 9	11	−19	28	16	27	9	34	20	47	25	37	10
23	15	−22	4	−21	31	25	25	14	17	−11	18	9	31	15	20	− 8	13	−10	30	20	29	21	31	18	40	25	40	28
24	14	−21	17	−27	28	− 2	16	− 5	15	−28	15	−17	24	3	35	− 7	5	−24	21	2	24	0	32	11	44	25	44	4
25	20	−15	11	−12	29	−12	16	−15	0	−32	20	−17	14	−28	32	− 8	6	−21	23	11	20	− 8	32	− 4	42	24	38	10
26	30	− 3	28	−14	36	4	16	−13	7	−27	25	−10	21	−18	31	− 9	11	−21	23	− 1	19	− 9	32	− 4	45	25	47	0
27	26	5	32	18	24	− 4	14	−12	20	−18	27	− 7	36	16	32	− 8	9	−20	11	0	19	−10	30	− 4	55	25	47	9
28	28	5	33	3	28	− 9	22	−13	20	−19	23	− 9	26	−13	35	− 8	9	−20	31	1	19	− 9	33	0	57	30	45	10
29	30	2	32	− 3	29	−12	18	−13	19	−28	27	13	21	−25	30	− 4	8	−21	16	1	21	− 9	34	2	60	29	51	12
30	33	7	26	− 5	32	− 6	15	−10	12	−26	20	− 7	22	−22	22	− 2	7	−18	23	3	21	− 9	34	7	60	33	48	6
31	30	15	40	11	35	30	25	15	22	12	45	15	37	16	21	− 3	20	4	35	18	25	15	52	17	63	37	46	15
Mns	21.6	−5.7	24.4	−2.2	28.6	4.7	26.3	7.9	16.4	−13.4	27.0	−0.5	23.0	−4.7	35.7	0.0	17.7	−8.0	33.9	17.6	29.7	9.3	49.4	17.7	46.2	22.8	38.8	9.9

Date.	Arizona.																											
	Babee.		Flagstaff.		Fort Apache.		Grand Canyon.		Parker.		Phoenix.		Prescott.		St. Michaels.		San Carlos.		Tucson.		Yuma.		Logan, Nev.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	64	34	51	32	64	26	50	28	.....	.....	65	40	59	36	45	23	.....	.....	71	32	74	40	60	30
2	63	33	38	28	48	29	38	22	.....	.....	69	42	54	32	46	31	.....	.....	74	44	74	41	56	32
3	37	42	29	11	49	14	26	− 1	.....	.....	57	34	52	27	41	26	.....	.....	61	31	58	38	48	30
4	48	22	26	5	43	11	24	− 2	.....	.....	51	28	35	14	26	12	.....	.....	49	21	56	26	54	26
5	48	21	27	10	42	9	34	4	.....	.....	45	25	35	15	30	5	.....	.....	54	17	48	30	44	24
6	46	24	30	− 2	40	10	34	0	.....	.....	49	34	36	15	30	8	.....	.....	52	36	56	37	41	23
7	54	25	30	− 2	50	16	35	− 4	.....	.....	52	33	40	19	28	1	.....	.....	57	28	61	36	40	28
8	58	33	36	14	49	23	34	8	.....	.....	63	37	44	33	26	3	.....	.....	65	28	56	41	47	28
9	58	35	38	17	48	16	32	6	.....	.....	58	41	45	29	38	20	.....	.....	67	29	64	43	50	40
10	57	45	36	12	49	21	38	6	.....	.....	62	44	49	39	36	.....	.....	.....	63	44	63	44	57	24
11	50	36	30	10	44	22	38	6	.....	.....	61	38	40	24	.....	2	.....	.....	59	27	63	43	52	25
12	52	25	44	8	52	14	39	4	.....	.....	60	34	49	29	36	0	.....	.....	60	22	63	40	53	29
13	62	32	45	19	58	24	39	4	.....	.....	62	37	58	37	39	16	.....	.....	64	27	68	40	55	28
14	60	39	32	9	57	29	40	10	.....	.....	61	35	44	38	30	6	.....	.....	66	27	66	42	57	28
15	49	33	31	21	51	21	40	10	.....	.....	58	44	42	22	29	0	.....	.....	65	41	61	51	56	24
16	60	30	43	3	51	18	38	8	.....	.....	65	40	48	28	32	2	.....	.....	59	37	63	42	55	26
17	49	37	24	12	48	19	32	4	.....	.....	53	35	34	25	27	17	.....	.....	60	35	57	41	52	29
18	39	31	23	0	33	19	30	4	.....	.....	54	31	33	19	32	− 2	.....	.....	40	33	53	28	45	23
19	35	25	31	− 8	36	4	28	2	.....	.....	51	26	39	1	17	−19	.....	.....	50	29	55	28	45	19
20	42	26	23	10	37	6	29	3	.....	.....	52	31	39	1	17	− 6	.....	.....	49	32	54	27	40	20
21	43	31	27	21	41	22	30	6	.....	.....	58	44	33	5	31	10	.....	.....	56	41	50	45	38	31
22	48	31	33	27	46	33	32	10	.....	.....	58	45	40	27	36	25	.....	.....	63	36	54	48	40	30
23	44	36	34	21	46	29	33	10	.....	.....	55	42	40	33	35	10	.....	.....	57	41	53	29	48	32
24	48	36	32	−12	46	31	33	−10	.....	.....	59	37	35	25	30	− 9	.....	.....	60	35	58	36	46	25
25	52	31	30	−11	56	16	38	−10	.....	.....	62	34	36	10	19	−13	.....	.....	69	30	59	40	45	22
26	58	29	47	−10	58	18	38	− 8	.....	.....	64	36	44	2	25	−11	.....	.....	70	36	59	37	48	21
27	62	39	48	−11	58	16	44	− 6	.....	.....	63	33	49	2	23	−11	.....	.....	70	30	61	39	48	20
28	57	38	43	0	58	12	45	4	.....	.....	60	36	47	13	27	− 8	.....	.....	66	32	58	42	47	23
29	61	44	44	9	57	16	40	6	.....	.....	67	43	47	13	29	− 8	.....	.....	69	39	65	40	50	20
30	62	40	52	1	67	17	53	10	.....	.....	70	38	56	14	33	− 5	.....	.....	76	39	71	53	48	27
31	67	44	45	36	69	17	44	35	.....	.....	70	51	57	38	45	28	.....	.....	79	44	68	52	46	31
Means	53.3	33.2	35.5	8.7	50.9	18.4	36.4	5.5	.....	.....	59.2	37.0	43.8	21.5	31.3ᵃ	5.1ᵃ	.....	.....	61.9	33.0	60.9	39.6	48.7	26.4

Climatological Data for December, 1909.

DISTRICT No. 10, GREAT BASIN.

ALFRED H. THIESSEN, District Editor.

GENERAL CLIMATOLOGICAL CONDITIONS.

The most important features of the weather for December were the continuously low temperatures which averaged much below normal, and the abundant moisture.

TEMPERATURE.

The mean temperature for the district, as a whole, was 20.8°, which was 8.4° below normal. All stations reported mean temperatures below normal, and at many stations there were only a few days in the month when normal temperatures prevailed. The highest mean temperatures occurred in the western portion of Nevada, southwest portion of Utah, and in Oregon; the lowest means occurred in eastern Nevada and in Wyoming. The mean temperature ranged from 6.0° at Border, Wyo., to 37.6° at Jean, Nev. As a rule, the greatest deficiencies were reported in the mountains of Utah and in northeastern Nevada, and the least in western Nevada.

The month began with temperatures generally below normal and so continued during the first decade, but on the 10th the pressure was low over the eastern slope of the Rockies and an area of high pressure appeared off the Pacific coast, resulting in much colder weather over the entire Great Basin. A succession of high pressure areas swept across this district during nearly all the remaining portion of the month, resulting in average pressure much above normal, which condition was accompanied by unusually cold weather.

There were two periods of very cold weather. The first extended from the 3d to the 6th and the second from the 10th to the 30th. During the first period the lowest temperatures for the month occurred in Oregon, Nevada, and California; and during the second period the lowest temperatures were reported in Utah, Idaho, and Wyoming. This last cold spell was remarkable for its length and its very low minimum temperatures.

The section director of Wyoming says: "The month was one of the coldest Decembers ever known in southwestern Wyoming. At Border, where records have been kept for 8 years, it was the coldest December on record; but at Evanston, where records have been kept for about 13 years, December, 1898, averaged 0.1° lower than December, 1909." In Utah it was the coldest December on record. December, 1895, is on record as the coldest previous December, but the present December was nearly 2° colder.

The lowest minimum temperature recorded was −30° at Border, Wyo., on the 30th. The highest maximum temperature was 70° at Jean, Nev., on the 2d.

PRECIPITATION.

As usual the monthly precipitation was very unevenly distributed, but was above normal at nearly every station. For the district, as a whole, it averaged 1.88 inches, which was 1.57 inches above normal. The greatest amounts fell in central Utah, western Nevada, and east-central California; the least in south-central Nevada. In Utah and Nevada the average precipitation was about twice the normal amount. Many stations reported very large amounts, as 10.60 inches at Lewers Ranch, Nev., and 12.21 inches at Truckee, Cal.

In Utah precipitation occurred at some point in the State each day during the entire month, except from the 25th to the 30th. It was less general in the remainder of the district. Almost every station reported heavy precipitation on the last day of the month. At many stations the precipitation on the last day of the month was in the form of rain which, together with the rapid rise in temperature on that day, caused floods and washouts at many points. This will be treated more fully in next month's report when reliable information will have been obtained.

The precipitation occurred principally as snow, and reports show that much more than the normal amounts were stored in the mountains. The warm weather on the last day of the month, together with the rain, resulted in the snow packing, a condition favorable to its long retention for next summer's supply.

Large amounts of snow were generally reported. In Utah the greatest amounts were 60 inches at Marion and 72 inches at Greyson. At Deer Park, Cal., which is 7 miles northwest of Tahoe City, the observer reported 75 inches, and at Glen Alpine, Cal., which is 8 miles southwest of Lake Tahoe, 70 inches were recorded. These are some of the largest amounts, and it is estimated that, as a rule, nearly double the normal amount of snow fell in Nevada, while in Utah much more than normal amounts have been measured.

MISCELLANEOUS PHENOMENA.

There was an average of 7 rainy days, 11 clear days, 7 partly cloudy days, and 13 cloudy days for the entire district.

Hail fell at Battle Mountain on the 12th, Carson Dam on the 5th, and Cherry Creek on the 2d, 7th, and 9th.

NOTES.

The section director of California writes: "The ice harvest from the lakes in east-central California will be the heaviest for many years. These lakes supply the ice for northern California and also for the Central Pacific Railroad."

It is noted that Senator Heyburn has introduced a bill authorizing the collection of statistics and information relative to the irrigation of arid lands. It instructs the Director of the Census of 1910 to collect and publish all available information relating to the quantity of land irrigated in the arid regions of the United States, and in each State and county in that section, under federal or State laws; the approximate value of lands per acre before irrigation and since water has been applied; the amount, character and value of irrigated crops produced, the location of the various projects and method of construction, with facts as to their physical condition, approximate cost per acre of putting water on the land, and such other information as may be of interest and value pertaining to the reclamation of the arid lands of the West.

THE AGRICULTURAL ENGINEER AND THE WEATHER BUREAU.

By THOS. H. MEANS, M. Amer. Soc. C. E. Project Engineer of the Truckee-Carson Project.

Meterological records are very essential in the study of those problems which fall to the lot of the engineer who deals with agricultural matters. To-day, perhaps, more than at any other time engineers are being called upon to make investigations and build works in connection with new or improved agricultural developments. The profession of agricultural engineer, so long an important one in Europe, is therefore becoming recognized in the United States. The agricultural engineer is called on to investigate irrigation and drainage works, report on schemes of farm management, control of forests, and so forth. His work is exceedingly varied, he may be called upon to build telephone lines in mountainous regions to maintain communication when the snows are too deep for travel, or he may have to build levees and dams in the valley or flood plain of a large river. Hardly any phase of his work can be satisfactorily accomplished with-

out the consideration of and dependence on meterological data and he therefore is vitally interested in the work of the Weather Bureau as it is the source of much of his fundamental data.

Fifteen years' apprenticeship in the study of problems presented to the agricultural engineer have given the writer a wholesome respect for the work of the Weather Bureau, and a desire to see its scope extended and its valuable records maintained without interruption.

The agricultural engineer has two uses for Weather Bureau records, one in connection with his consideration of agricultural problems, and the other in his studies for the building of works of various sorts.

In the investigation of agricultural problems the engineer is often required to report on the agricultural possibilities of a country where little farming is carried on. He seldom finds well-equipped Weather Bureau stations in such localities, and has to depend on near-by stations in locations similar as regards elevation, topography, and exposure. By comparison of vegetation and the collection of a short series of observations he can generally form some fairly accurate measure of the climate of the district under consideration. The second point which is important here is that weather stations in new and remote localities nearly always prove useful sooner or later. There is hardly any part of the United States which will not become valuable and be inhabited in the next 50 years, and it is none too soon to commence to collect records. In many areas much good is already coming from the records being gathered from remote mountain stations during the winter time, and as water resources are developed and conserved for irrigation and power these stations will increase in number and importance. Commercial organizations are putting in stations where the Weather Bureau can not take up the work and much more of this kind of extension is likely to take place in the near future. There is considerable advantage in having any class of work handled by experts, and it is generally true that the various weather services of federal or State Governments can collect, preserve, and publish these records in better shape than can individual corporations. For this reason the extension of the United States Weather Bureau work in some regions seems very necessary.

In the consideration of agricultural problems, frost records, sunshine, hail, wind velocities, extremes of heat and cold, daily variation of temperature, and rainfall by months and seasons are most important. Humidity, evaporation, rate of rainfall, snow depths, fogs, etc., are of less importance, though exceedingly valuable from other engineering standpoints.

Wind velocities, duration of winds, direction of extreme winds, and so forth have an important bearing on the kinds of crops which can be grown and the kinds of soil which can be profitably handled.

Frost records seem difficult to collect and are often very local in value. A light frost which nips the beans in the observer's garden is apt to be reported as a killing frost and go into the records as such. Such a record would be very misleading in later years. If some classification could be given of the severity of frosts, other than those now in use, light frost and killing frost, it is thought the records would prove of more permanent value.

The other elements which go to make up a complete meteorological report on any locality are all important, no one of them can be omitted without loss, yet when it is not possible to collect all the various kinds of records a partial list is of much value. The distribution of regular Weather Bureau stations where all classes of records are kept is now sufficient to enable one to interpolate and supply missing data for the less broadly equipped cooperative stations.

The space allotted will not permit a wide discussion of the general value of weather records to agricultural engineers or permit a full view of the problem, and a few important problems only will therefore be touched upon.

Many times during a season the active engineer is required to consider questions of the run-off from stream watersheds. Often no complete records of flow are available and even where stream flow measurements have been made the period over which they extend is none too long. Precipitation records generally extend over much longer periods and the engineers have to consider the relation between precipitation and run-off. This is certainly one of the most unsatisfactory pieces of work one can undertake. There is no question but that there is some general relation between stream flow and run-off, but there are so many factors which enter to complicate the problem that it has never been satisfactorily solved. We are coming nearer a solution every year, and now that more attention is being paid to collection of records from the higher parts of the watersheds, we have a more hopeful view-point than ever before. It is to be hoped that every effort will be made to collect weather data from such places and in such manner as will enable us to make some estimate of the relation between these figures.

Evaporation studies have been carried on at intervals for many years, but the sum total of our knowledge of the evaporation from bodies of water is not great. The recent activity of the Weather Bureau in this matter is appreciated, and it is hoped our knowledge of the subject will be greatly increased.

The engineer who is operating a water power plant or an irrigation project is much interested in the matter of long range prediction of the character of the season. If we could be informed in advance whether a season is apt to be wet or dry, the information would be of untold value. So far very little in the way of such prediction has been attempted, but some hope is extended to us that in time it may be possible to predict the general character of the weather for longer periods than now. Every extension of the period of prediction will be immensely valuable to us. Many of our western streams are subject to sudden and violent floods, and the collection of data regarding precipitation in the mountains will help the man in the plains to be prepared for these floods as well as for periods of low water. There is some hope that we will be able also to predict from these records something of the character and amount of run-off considerably in advance of the time when it occurs.

The matter of publication of weather records has always been troublesome to the busy man, and the division along State lines a source of annoyance, but this has been corrected by the new method of publication in hydrographic districts. The amount of library material which must be collected by the individual engineer is very great and this method of publication will enable the filing of all weather records one person is usually interested in, in compact form.

It is readily seen that weather records are the ground floor facts on which many important engineering problems are based. These records are becoming more important yearly, and with the addition of the new lines of work recently started future records will be most satisfactory. Records from remote localities are often the most important and the extension of the Weather Service over new territory will be very valuable to future generations.

NOTE.—Referring to remarks made above on the classification of frosts it may be said that the frost data of any place would have greater value if, with the report of a frost, the observer would mention just what damage was done.—*A. H. T.*

PRACTICAL BENEFITS OF THE WEATHER BUREAU.

By HORACE W. SHELEY, Assoc. M. Am. Soc. C. E.

Among the many bureaus maintained by the Federal Government for the purpose of collecting scientific data for the use of its citizens there is none that deals with the subject of more general interest to the public than that of the Weather

Bureau. Even to-day the average man looks into his morning paper to find out what sort of weather is predicted for the next few hours, and in the future, when observations shall have been extended over a longer period of years, and it may therefore be possible to make predictions for a longer period of time with more accuracy than is now possible, the information presented by the Weather Bureau will undoubtedly be the most widely read of any literature published by the Government.

It seems unfortunate that the objects, methods, and results of the Bureau are not more widely known and understood throughout the country, although along the sea coast and in many of the fruit and other districts the value of the Bureau is already properly appreciated. It is the object of this paper to show how the weather observations can be of great practical utility to-day and in the future to us all.

The vast saving of life and property effected by the Weather stations along the sea coast and the Great Lakes by timely warnings of approaching storms is so well known to shipping interests and the public that it is unnecessary to consider it here further than to say that the value of the observations will probably be materially increased before long by the use of wireless telegraphy and international cooperation in obtaining observations.

On land at the present time the chief commercial value of the Bureau is in the warning of the coming of cold waves and late frosts to fruit and truck farm regions where, owing to the high value of crops, it is possible for a short time to protect them against injury by raising the temperature a few degrees artificially by means of smudging or by some other method. The first use of the reports of the Weather Bureau for this purpose was made by the citrus fruit growers of Florida and California, and it is probable that the savings to the orange crops alone would very much more than pay for the cost of the Bureau to the Government. In the enterprising fruit regions producing apples, peaches, etc., such as Palisade and Grand Junction, in western Colorado, the Weather Bureau has already been of great assistance to the fruit growers. It has been said that there would have been at least a partial, possibly a complete, failure of crops in the season of 1909 had it not been for smudging, that is artificial heating of the orchards by means of oil pans. The Weather Bureau gave advance warning of the coming of colder weather and a probable frost some days before it actually came, enabling growers to prepare for it, and just before it was due instructions were sent out to start raising the temperature.

In planning for the development of a new irrigation district, it is essential to have some idea of what crops can be grown, and of the returns per acre so that the practical commercial limit of expenditure for the irrigation plant may be calculated. In such a region records of rain, temperature, and frost supply much of the necessary information, and since the Weather Bureau officials have been far-sighted in having as many stations as possible in advance of the greater development of the country, it usually happens that one is able to find some place near the region it is proposed to develop where climatic records have been kept. The writer has in mind the proposed development of an irrigation project, where comparison of the altitude, soil, and climate with that of a district a hundred miles away already developed into a very famous fruit district, indicates that the same results may be accomplished in the new district with proper effort.

A further practical use of weather observations is the estimation of the probable run-off of streams by calculation of the rainfall. The writer is well aware that there is no ratio of run-off to rainfall that can be applied to different watersheds, but he does contend that the engineering profession could safely make more extended use of precipitation data than now. In the West, particularly, water power and irrigation developments generally precede any extended measurements of the amount of water discharged annually by the stream. Sometimes only a few measurements of the stream have been made when it is taken up for development, and it is necessary to devise some method of estimating the run-off of the stream; because those proposing to utilize the stream are unwilling to wait long years while it is being gaged, and likely they would lose their water right meanwhile. Under such circumstances is it not better to take the ratio of run-off to rainfall on the basis of the nearest drainage basin of similar character and altitude, where the amount carried off by the stream has been actually gaged, and apply this ratio to the stream to be developed, rather than to guess altogether?

Again, even in cases where the stream has been actually measured for a few years, the question comes up, has the period of measurement been one of normal or abnormal run-off; has there been more water than during average years, or how much less water than the amount measured are we liable to have during dry years?

Accurate stream gaging throughout the year is a comparatively new thing. Of the streams to be utilized in the future, particularly in the arid regions, few have been measured accurately for a longer period of time than 5 years, very few more than 10, and it is exceptional for more than 15.

Now, since precipitation records usually have been kept for a much longer time than stream measurements, it is possible to use them for a check on the stream measurements. For example: The amount of water discharged by the stream has been measured for 3 years, and we want to know whether the period was an average one or not. Now, say, that there is a place, possibly not in the drainage area of the stream in question, but close enough so that the seasonal variations probably would be alike for both places, a year of exceptional rainfall at the weather station occurring at the same time as a year of exceptional floods in the river, where precipitation records have been kept for 20 years. Now, if the records of these 3 years at the weather station show that the rainfall was normal during the 3-year period and for a year preceding that period, then we would have much justification for saying that the flow of the stream probably was normal for that period. If the rainfall record for the period had been unusually great it would be necessary to regard the run-off record with suspicion and deduct something for it. If the rainfall records had been abnormally low for the period and possibly for a year before, making the period the driest for 20 years, we would be fairly safe on figuring on the measured discharge being the minimum discharge of the stream. The longer the precipitation records the more reliable the calculation.

Often the gaging points are not situated at the point on the stream just where the water is to be diverted from it. The writer has in mind one case where the diversion point is 45 miles below the old gaging station, or point of measurement, of a river, and the drainage area is three times greater at the point of diversion than it is at the gaging station. The proposed point of diversion of another stream is 100 miles above the Government gaging station. It is obvious that some correction must be made to the recorded stream flow in both these cases, and the only way to do so at present is to make comparisons of watershed areas and precipitation.

It is thus seen that the records of wind, temperature, frost, and precipitation, as kept by the Weather Bureau, are of very great benefit to shipping, to farmers, and to engineers of power and irrigation developments. The public, if it be so minded, can return value for value received by cooperation with the Bureau. There is little labor attached to keeping the ordinary cooperative station, in fact to the average person it is a pleasure. The one general subject of interest at all times to all people is the weather, and if a thermometer is at hand we usually like to read it the first thing in the morning. The Bureau is largely dependant upon cooperative observers throughout the country,

and the value of its records can be greatly increased by assistance rendered by us in the private walks of life. The Bureau is particularly in need of observers at the higher altitudes in the West. The cooperative observer is rewarded for his small efforts by his interest in the records, by weather reports sent to him personally, and by the feeling of pride we must all have when we think we are achieving something for the benefit of our fellow men.

TABLE 1.—*Climatological data for December, 1909. District No. 10, Great Basin.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Wyoming.																				
Border	Uinta	6,085	7	6.0	− 7.4	37	31	−30	30	50	1.10	+ 0.16	0.42	.....	5	17	7	7	w.	S. W. Condron.
Evanston	....do	6,860	13	12.0	− 8.1	41	8	−26	18	41	1.62	+ 0.24	0.93	10.0	6	16	8	7	sw.	Frank Tucker.
Idaho.																				
Geneva	Bear Lake	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. W. Boehme.
Grace	Bannock	5,400	3	15.9	.....	35	9†	−10	18	30	1.06	.....	0.75	3.9	5	17	3	11	n.	E. A. Ekern.
Oxford	....do	4,750	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Edwin Smith.
Paris	Bear Lake	5,946	13	.....	.....	39	31	.....	.....	.....	1.09	+ 0.06	1.00	16.0	4	14	5	12	.....	John Norton.
Stone	Oneida	4,520	2	.....	.....	41	17	.....	.....	.....	.....	.....	.....	24.0	10	13	9	9	s.	Thos. W. Roe.
Weston	....do	4,610	12	14.5	− 9.6	37	9	−18	18	36	2.04	+ 0.95	0.80	12.5	8	7	7	17	s.	Wm. T. Chatterton.
Utah.																				
Annabella	Sevier	5,250	4	.....	.....	.....	.....	.....	.....	.....	1.78	.....	0.64	19.0	9	.....	.....	.....	.....	J. W. Fairbanks.
Beaver	Beaver	6,000	6	22.2	.....	48	30	− 4	18	32	1.56	.....	0.50	14.0	8	13	7	11	n.	James Connell.
Black Rock	Millard	4,872	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. H. Cassell.
Blacksmiths Fork	Cache	5,500	....	.....	.....	.....	.....	.....	.....	.....	1.50	.....	0.68	15.0	5	8	3	20	.....	U. S. Forest Service.
Card Canyon	....do	5,000	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16.6	6	9	7	15	.....	Do.
Castle Rock	Summit	6,244	6	.....	.....	.....	.....	.....	.....	.....	0.93	.....	0.40	13.5	5	11	9	11	ne.	David Moore.
Cedar City	Iron	5,750	4	23.7	.....	49	1	− 2	18	37	0.65	.....	0.16	7.0	8	10	3	18	s.	J. M. Foster.
Corinne	Boxelder	4,240	39	16.8	−12.2	39	11	− 7	29	35	1.79	+ 0.24	1.24	5.5	5	12	4	15	nw.	A. C. Murphy.
Coyoto	Garfield	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. E. Clayton.
Deseret	Millard	4,541	15	21.8	− 4.1	48	31	− 0	18†	32	0.90	+ 0.37	0.35	4.0	6	14	4	13	n.	S. W. Western.
Enterprise (near)	Washington	4,270	1	.....	.....	.....	.....	.....	.....	.....	0.49	.....	0.13	7.0	5	8	12	11	s.	John Day.
Farmington	Davis	4,267	9	22.5	.....	47	31	3	18	27	4.05	.....	1.40	24.5	9	15	2	14	n.	Charles Boylin.
Fillmore	Millard	5,100	19	25.7	− 4.8	50	9	1	18	35	1.22	+ 0.12	0.38	.....	11	.....	.....	.....	.....	J. J. Starley.
Frisco	Beaver	7,318	15	21.0	−13.5	48	1	− 9	6	35	0.33	− 0.07	0.20	.....	.....	.....	.....	.....	.....	E. R. Smyth.
Garland	Boxelder	4,350	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Harry B. Shaw.
Garrison	Millard	.....	6	.....	.....	.....	.....	.....	.....	.....	0.20	.....	0.20	.....	.....	8e	0	18e	n.	E. M. Smith.
Golden Reef	Beaver	7,000	...	.....	.....	.....	.....	.....	.....	.....	1.55	.....	0.40	15.5	6	.....	.....	.....	.....	D. W. Woodard.
Government Creek	Tooele	5,277	9	19.0	.....	47	1	− 9	18	32	1.61	.....	0.37	14.0	11	12	8	11	s.	Walter James.
Heber	Wasatch	5,606	16	13.7	− 9.2	40	2†	−26	18	40	4.43	+ 2.86	1.85	43.0	8	15	2	14	n.	John Crook.
Henefer	Summit	5,301	10	13.6	.....	42	8	−22	18	35	2.02	.....	0.70	17.5	11	15	4	12	n.	Wm. Brewer.
Hoyts Canyon	....do	7,400	...	.....	.....	.....	.....	.....	.....	.....	5.53	.....	.....	.....	.....	.....	.....	.....	.....	James Woolstenhulme.
Huntsville	Weber	5,100	14	.....	.....	.....	.....	.....	.....	.....	4.36	+ 2.54	1.36	.....	8	9	10	12	.....	Lars Petersen.
Ibapah (near)	Tooele	7,500	4	18.0	.....	47e	30	− 9e	18	32e	0.24k	.....	0.09k	3.0k	4	11k	1k	8k	e.	E. S. Gamwell.
Kanosh	Millard	5,250	1	.....	.....	.....	.....	.....	.....	.....	0.83	.....	0.34	.....	5	.....	.....	.....	.....	Geo. Crane.
Kelton	Boxelder	4,230	31	13.4	.....	37	9	−13	18	35	1.10	+ 0.37	0.40	11.0	5	16	4	11	.....	F. W. Klock.
Levan	Juab	5,010	19	17.2	− 8.4	42	2†	−14	18	28	3.17	+ 1.51	0.75	23.9	14	14	4	13	n.	Wm. Brown.
Logan	Cache	4,507	18	15.5	−10.4	35	8†	− 7	18	22	2.38	+ 1.36	0.60	.....	9	.....	.....	.....	.....	State Agricultural College
Lucin	Boxelder	4,504	5	15.8	.....	50	1	−12	24	35	0.90	.....	0.30	.....	4	12	12	7	.....	C. J. Burke.
Lund	Iron	5,086	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. E. Smith.
Manti	Sanpete	5,575	15	15.8	− 9.8	47	31	−18	18	35	1.86	+ 1.06	0.64	5.5	9	10	9	12	.....	J. M. Anderson.
Marion	Summit	6,750	5	.....	.....	.....	.....	.....	.....	.....	2.40	.....	0.83	11.5	8	5	8	18	nw.	James Woolstenhulme.
Marysvale	Piute	6,180	10	16.8	.....	51	1	−20	18	43	1.53	.....	0.60	10.1	11	11	8	12	ne.	John W. Henry.
Meadowville	Rich	6,200	10	18.0	.....	42	31	− 5	18	28	0.55	.....	0.28	5.5	5	11	2	18	w.	J. S. Moffat.
Milford	Beaver	4,962	5	16.3	.....	40	13	− 6	25	31	0.80	.....	0.50	1.0	3	12	0	19	.....	C. M. Temple.
Millville	Cache	4,848	14	.....	.....	.....	.....	.....	.....	.....	2.28	+ 1.23	0.77	.....	9	.....	.....	.....	.....	Fred Yeates.
Minersville	Beaver	5,070	12	.....	.....	.....	.....	.....	.....	.....	0.98	.....	0.21	5.7	7	.....	.....	.....	.....	Geo. Roberts.
Modena	Iron	5,479	9	19.9	−11.8	49	1	−11	24	38	1.02	+ 0.21	0.23	8.9	11	9	11	11	w.	U. S. Weather Bureau.
Morgan	Morgan	5,080	6	14.4	.....	42	31	−22	18	42	3.15	.....	0.80	23.0	8	10	11	10	nw.	W. Visick.
Moroni	Sanpete	5,519	1	.....	.....	.....	.....	.....	.....	.....	2.38	.....	0.52	17.0	9	3	24	4	.....	B. F. Eliason.
Mount Nebo	Utah	4,650	8	19.8	.....	45	1†	−10	18	28	1.11	.....	0.40	12.0	9	15	5	11	n.	D. C. Walkey.
Mount Pleasantd	Sanpete	5,859	17	18.6	− 8.6	40	1†	−15	18	34	.....	.....	.....	.....	.....	9	18	4	.....	Jane Martin.
Nephi	Juab	6,059	6	.....	.....	.....	.....	.....	.....	.....	2.45	.....	0.54	21.5	13	16	8	7	nw.	A. Madsen.
Nephi (near)	....do	6,059	....	.....	.....	.....	.....	.....	.....	.....	2.25	.....	0.74	18.0	14	12	9	10	n.	S. R. Boswell.
Oak City	Millard	4,900	5	21.8	.....	46	2	− 3	18	27	2.43	.....	1.00	20.0	....	10	6	15	.....	Jos. Finlinson.
Ogden (1)	Weber	4,310	8	20.7	− 9.0	39	8†	− 9	22	31	3.86	+ 2.21	1.10	22.0	6	10	2	19	nw.	Enoch Farr.
Ogden (2)**	....do	4,310	39	24.1	− 7.5	45	31	3	18	....	2.46	+ 0.85	1.10	22.0	11	7	6	18	e.	W. H. Chevers.
Panguitch	Garfield	6,560	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. C. Syrett.
Panguitch Lake	....do	9,000	...	.....	.....	.....	.....	.....	.....	.....	2.31	.....	0.88	17.0	5	11	8	12	n.	James E. Prince.
Park City	Summit	7,800	12	18.6	− 9.2	53	1	−14	18	36	4.68	+ 2.73	2.00	.....	9	14	5	12	.....	Irvin Evans.
Parowan	Iron	5,970	18	22.4	− 6.4	50	1	− 5	18	35	1.29	+ 0.42	0.35	.....	7	.....	.....	.....	.....	Scott Matheson.
Payson	Utah	4,637	6	.....	.....	.....	.....	.....	.....	.....	2.48	.....	0.78	27.0	11	9	...	22	sw.	D. L. Coombs.
Pinto	Washington	5,907	12	20.5	− 6.6	49	1	− 6	26†	44	2.77	+ 2.11	1.67	14.0	7	11	4	16	n.	John H. Harrison.
Promontory	Boxelder	4,913	38	.....	.....	.....	.....	.....	.....	.....	3.00	+ 2.18	1.00	30.0	6	.....	.....	.....	.....	F. C. Houghton.
Provo	Utah	4,532	17	19.5e	.....	50e	31	− 7e	18	30	1.35	.....	1.20e	4.5e	1e	10	9	12	.....	James A. Oliver.
Randolph	Rich	6,442	6	.....	.....	.....	.....	.....	.....	.....	0.59	.....	0.30	12.0	3	14	1	16	.....	Wm. Rex.
Richfield	Sevier	5,350	19	17.4	−11.2	46	1	−17	18	34	1.46	+ 0.81	0.66	.....	4	9	1	21	.....	Joseph J. Jensen.
Richins Summit	Summit	6,500	...	.....	.....	.....	.....	.....	.....	.....	2.35	.....	0.24	6.5	13	.....	.....	.....	.....	Ernest H. Brewer.
Saltair	Salt Lake	4,220	6	25.2	.....	46	10	10	19	20	1.94	.....	0.41	12.5	11	.....	.....	.....	.....	E. J. Bench.
Salt Lake City	....do	4,366	35	24.0	− 8.1	48	31	4	18	26	1.50	+ 0.17	0.59	13.8	11	7	12	12	se.	U. S. Weather Bureau.
Scipio	Millard	5,260	14	16.8	− 9.8	51	1	−27	18	43	2.96	+ 1.93	0.77	17.0	8	13	4	14	sw.	Thos. Memmott.
Silver Lake	Salt Lake	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	N. S. Fetherolf.
Soldier Summit	Utah	7,474	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, D. & R. G. Ry.
Spanish Fork Canyon	....do	.....	...	22.6b	.....	48b	2b	− 4b	18b	26b	.....	.....	.....	.....	.....	11d	0d	16d	.....	U. S. Reclamation Service
Thistle	....do	5,075	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, D. & R. G. Ry.
Tooele	Tooele	4,900	13	22.6	− 7.9	49	31	3	17†	31	1.99	+ 1.01	0.52	.....	11	7	11	13	nw.	E. A. Bonelli.
Utah Lake Pump'g Sta.	....do	4,500	4	19.3	.....	39	31	−14	18	33	2.32	.....	0.65	16.5	14	7	14	10	.....	W. A. Knight.
West Canyon	Tooele	7,800	....	.....	.....	.....	.....	.....	.....	.....	1.85	.....	.....	17.5	.....	.....	.....	.....	.....	Walter James.
Oregon.																				
Ana River	Lake	.....	...	.....	.....	.....	.....	.....	.....	.....	0.72	.....	0.28	5.5	7	13	10	8	nw.	Curtis Duvall.
Burns	Harney	4,157	19	16.4	− 9.8	44	1	−11	27	34	2.29	+ 1.14	0.41	24.0	7	10	8	13	e.	J. C. Welcome, jr.
Burns Mill	....do	.....	...	.....	.....	.....	.....	.....	.....	.....	2.53	.....	0.85	25.3	8	25	4	2	.....	John P. Sayer.
Cecils Ranch	....do	.....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. D. Cecil.
Christmas Lake	Lake	.....	1	21.8	.....	44	8†	−16	6	44	1.01	.....	0.50	15.0	9	4	8	19	e.	John C. Green.
Paisley	....do	4,500	5	27.0	.....	50	12	2	23	35	0.77	.....	0.23	7.0	13	15	4	12	.....	E. C. Woodward.
"P" Ranch	Harney	.....	...	.....	.....	.....	.....	.....	.....	.....	0.61	.....	0.44	.....	3	13	6	12	.....	A. M. Byrd.
Silver Lake	Lake	4,700	14	25.4e	− 4.8	46f	11†	− 6	6	37	0.70	− 1.45	0.20	8.0	5	20	3	8	ne.	E. K. Henderson.
California.																				
Truckee	Nevada	5,819	38	17.2	−11.5	40	1	− 2	6†	25	12.21	+ 7.91	2.40	30.1	13	11	0	20	ne.	Agent, So. Pac. Co.
Nevada.																				
Austin	Lander	6,594	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. F. Wiseman.
Battle Mountain	....do	4,843	39	23.8	− 7.3	62	1	− 6	28	47	0.83	+ 0.13	0.20	2.5	4	13	6	12	n.	Agent, So. Pac. Co.
Beowawe	Eureka	4,905	39	21.6	− 8.2	44	5†	− 3	29	30	1.30	+ 0.53	1.00	3.0	4	20	2	9	nw.	Do.
Carlin	Elko	5,232	39	19.6	− 6.8	45	1	−10	20	47	0.81	+ 0.43	0.30	10.0	7	13	0	18	.....	Do.
Carson Dam	Churchill	4,032	3	29.2	.....	56	1	10	4	25	0.96	.....	0.37	0.5	4	7	3	21	e.	U. S. Reclamation Service
Cherry Creek	White Pine	6,450	1	19.6	.....	46	30	−11	18	38	2.11	.....	0.72	10.2	10	12	10	9	nw.	J. H. Leishman.
Clover Valley	Elko	6,000	10	15.3	.....	40	1	−12	18	35	3.04	.....	2.00	18.0	8	13	3	15	.....	J. F. Wiseman.
Cobre	....do	.....	...	18.4	.....	48	19	−15	21	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, So. Pac. Co.

TABLE 1.—*Climatological data for December, 1909. District No. 10*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Nevada—Cont'd.																				
Columbia	Esmeralda	5,750	3	26.2	.....	55	1	5	18	32	0.27	.....	0.20	0.5	4	9	13	9	se.	A. Booth.
Dutton	Elko	5,100	2	21.0	.....	36	3	−14	15†	49	1.80	.....	0.80	18.0	4	15	13	3	n.	Golconda Cattle Co.
Elko	do	5,342	39	15.0	−12.0	53	1	−20	25	52	.....	.....	.....	.....	.....	16	2	13	e.	Agent, So. Pac. Co.
Ely	White Pine	6,421	19	20.9	− 5.7	54	1	−10	18	40	1.87	+ 0.83	1.30	6.0	4	26	4	1	w.	G. C. Hunting.
Eureka	Eureka	6,500	7	20.6	−12.0	48	1	− 6	18	31	0.71	− 0.38	0.25	15.0	8	9	7	15	s.	Clay Simms.
Fallon	Churchill	3,965	5	27.6	− 4.4	55	1	8	24	29	1.30	+ 0.66	0.83	2.5	7	11	4	16	w.	U. S. Reclamation Service
Fernley	Lyon	4,200	2	29.2	− 3.0	56	1	11	31†	31	.....	.....	.....	.....	.....	2	10	19	w.	Do.
Gardnerville	Douglas	4,830	10	29.1	− 3.3	58	1	5	6	31	4.80	+ 2.81	1.20	24.0	9	4	7	20	e.	William Dangberg.
Geyser	Lincoln	.....	5	16.7	.....	48	14	−23	24	57	0.90	.....	0.60	9.0	....	12	11	8	n.	Mrs. J. F. Wambolt.
Golconda	Humboldt	4,697	31	23.0	− 9.7	58	1	− 4	21	37	1.23	+ 0.40	0.50	3.0	6	10	5	16	nw.	Agent, So. Pac. Co.
Halleck	Elko	5,631	17	10.5	−14.4	37	2	−25	12	37	0.90	− 0.28	0.50	9.0	2	7	5	19	nw.	Do.
Hamilton	White Pine	7,977	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	George Allen.
Humboldt	Humboldt	4,236	39	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, So. Pac. Co.
Jean	Clark	2,074	2	37.6	.....	70	2	1	25	44	1.59	.....	0.40	8.0	5	1	18	12	sw.	Agent, Salt Lake Route.
Leetville	Churchill	4,020	3	28.8	.....	60	1	10	19	30	1.45	.....	0.50	2.0	5	9	6	16	n.	U. S. Reclamation Service
Lewers Ranch	Washoe	5,500	22	27.8	− 6.6	52	8	3	6	33	10.60	+ 7.19	3.30	21.0	10	11	8	12	.....	Ross Lewers.
Lovelock	Humboldt	3,977	17	.....	.....	65	11	.....	.....	.....	0.28	+ 0.09	0.25	1.5	3	.....	.....	.....	.....	John S. Case.
McAfees Ranch*	Esmeralda	4,835	6	20.1	.....	49	1	−13	4†	60	0.20	.....	0.20	3.0	1	3	0	28	n.	G. A. McAffee.
Millett	Nye	.....	2	19.0	.....	52	1	− 9	24	35	0.75	.....	0.40	4.0	4	14	3	14	n.	Fred J. Jones.
Mina	Esmeralda	4,600	3	27.2	.....	54	2	5	3	38	1.20	.....	0.70	5.0	3	12	3	16	w.	Angent, So. Pac. Co.
Palmetto	do	6,780	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Isaac McConnell.
Potts	Nye	6,990	17	16.4	− 8.5	43	30	−11	18	37	0.77	+ 0.26	0.30	7.0	4	9	4	18	n.	Miss Mamie Potts.
Quinn River Ranch	Humboldt	4,850	8	24.0	.....	55	1	−10	6	42	1.43	.....	0.35	5.7	10	9	0	22	w.	F. M. Payne.
Reno	Washoe	4,532	39	29.6	− 4.1	55	12	8	6	27	2.42	+ 0.75	1.45	2.3	8	6	13	12	sw.	U. S. Weather Bureau.
Soda Lake	Churchill	4,534	3	28.4	.....	55	1	12	19	25	1.36	.....	0.62	3.8	9	3	9	17	n.	U. S. Reclamation Service
Tecoma	Elko	4,812	32	.....	.....	.....	.....	.....	.....	.....	0.85	+ 0.18	0.20	8.5	7	6	18	7	.....	Agent, So. Pac. Co.
Tonopah	Nye	6,090	3	24.2	.....	48	1	9	4	26	0.16	.....	0.04	3.4	7	11	12	8	se.	U. S. Weather Bureau.
Wabuska	Lyon	4,347	7	25.6	.....	60	2	0	19	38	0.22	.....	0.10	T.	6	6	10	15	ne.	J. G. Young.
Wells	Elko	5,631	38	13.0	−12.1	42	31	−18	17	49	1.65	+ 0.62	0.40	16.5	9	9	0	22	n.	Agent, So. Pac. Co.
Winnemucca	Humboldt	4,432	31	23.5	− 7.2	44	1	1	24	27	2.44	+ 1.45	1.06	6.1	14	6	5	20	ne.	U. S. Weather Bureau.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Separate dates of fall not recorded.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for December, 1909. District No. 10, Great Basin.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Wyoming.																																	
Border	Bear		.06	T.	T.	.36				.42			.07																			.19	1.10
Evanston	do	.31	.62			T.				.15	.21		T.	.13	T.						T.	T.									.20	1.62
Idaho.																															.42	1.52
Geneva	Bear	*	*	*	1.10																										.75	1.06
Grace	do	T.	.17	.12			T.		T.	T.	.01		.01				T.															
Oxford	do			.02		.05	.02																								1.00	1.09
Paris	do																														.80	2.04
Stone	Deep Creek		.22			.30		.11	.05	.40			.11	.05																		
Weston	Bear																.02					.01	.01								.15	1.56
Utah.																							.04									
Annabella	Sevier		.40	.16		.16	.64	.15		.23				T.																		
Beaver	do	.02	.05			.25	.15	.50		.40																						1.50
Black Rock	do													.68										.07					.01			
Blacksmiths Fork	Bear	.09						.65																							.25	0.93
Card Canyon	do				T.					.20			.05	.03							T.										.03	0.65
Castle Rock	Weber	.40								T.	.16													.12								
Cedar City	Desert		.14	.01		.03	.03	.13		1.24			.05										.05		.05							1.79
Corinne	Bear					.40																										
Coyoto	Sevier																					.03									.10	0.90
Deseret	do		.18					.04		.35			.20									*	*	.36								0.49
Enterprise (near)	Desert			T.		*	.13										T.					T.	T.								T.	4.05
Farmington	Great Salt Lake	1.40	.10	.60	.10	.15	.40	T.		.40	.60			.30			T.					T.	.01								.17	1.22
Fillmore	Sevier	.01	.38	.10			.13	.14		.05	.20			T.	.02		T.	.01													.05	0.33
Frisco	Desert					.08														.20												
Garland	Bear																															
Garrison	Desert																															1.55
Golden Reef	do		.40		.35					.30	.10							.10				.30										
Government Creek	do		.30	.05		.35	.02	.04		.26	.37			.05	T.		T.				T.		.07								.10	1.61
Heber	Jordan	.38	.50			.08		.12		.80	.30			.40							T.		T.		T.						1.85	4.43
Henefer	Weber	.25	.29	T.		.09	.09	.05	T.	.70	.29	.01	T.	.05							T.		T.								.15	2.02
Hoyts Canyon	do						*	*	*	1.91				.17							.05										5.53
Huntsville	do	1.36	.12										T.	.10			.03	.09			T.										.80	4.36
Ibapah (near)	Desert																						.08								.02	0.24
Kanosh	Sevier				.09	.04		.28			.34																					0.83
Kelton	Great Salt Lake						.40	.20	.10	.30																					.10	1.10
Levan	Sevier	.02	.34	.06			.75	.28		.35	.56			.01	.09			.03				T.	.05	.05							.58	3.17
Logan	Bear			.03	.27	.10				.45	.60	.30	.03																		.60	2.38
Lucin	Desert	.30	.20			.20				.20																						0.90
Lund	do																															
Manti	Sevier	.12	.31			.05	T.	.05		.38				.21									.05	.05							.64	1.86
Marion	Weber	.27	.65			.04	T.	T.		.43	.11		T.	.05	T.		T.		T.		.02	T.									.83	2.40
Marysvale	Sevier	.02	.09			.02	.02	.27		.15	.24			.02					T.	T.	T.	.09	.01	T.							.60	1.53
Meadowville	Bear		.15							.10	.28		.02									.10										0.55
Milford	Sevier		.50			.20																										0.80
Millville	Bear	.40				.04	.10	.03		.77	.27											.05									.36	2.28
Minersville	Sevier		.11	T.		.20	.10			.21	.11										.09	.23	.03								.20	0.98
Modena	Desert	.02	T.	.01	.09		.11	.04	.22	.02																					.16	1.02
Morgan	Weber		.80			.60		.20	.20	.60	.20		.30										.19								.25	3.15
Moroni	Sevier	T.	.15	.42		.52		.13		.50	.14				.24																.09	2.38
Mount Nebo	Jordan	T.	.02	.04	.01	.14		.04		.28	.14			.04																	.40	1.11
Mount Pleasant	Sevier																															
Nephi	Jordan	.05	.24		.08	.32	.18	.10		.37	.36	.02			.12								.03	.04							.54	2.45
Nephi (near)	do	*	.20	*	.25			.50	*	*	.44			.07	.05																.74	2.25
Oak City	Sevier	.13	.25	.30		1.00	.27	.30	.21	.24																					1.03	2.43
Ogden (1)	Weber	.31	1.10							.90	.78			.45																	.33	3.86
Ogden (2)	do	.31			.11	.15	.06	T.		1.10			.16	.15									.15	.10	.08						.09	2.46
Panguitch	Sevier																															
Panguitch Lake	do		.21			.07		.50		.88				T.								.65									*	2.31
Park City	Weber	.20	.80			.44		.13		2.00			.10	.20								.10									.71	4.68
Parowan	Desert	*	.20			.35	.05	.20			.15												.15								.19	1.29
Payson	Jordan	.08	.52	T.	.18	.26	.06	.12		.14	.78			.13			T.	T.													.25	2.48
Pinto	Desert		T.		.02	.09		.08		.65											*	*	.26							*	1.67	2.77
Promontory	Great Salt Lake	.20					.80			1.00		.40				.40													.20			3.00
Provo	Jordan						*	*	*	*	*	1.20												.05	.10						T.	1.35
Randolph	Bear		.13	T.	T.	T.	T.	T.	T.	T.	.30								T.	T.	T.	T.	T.								T.	.16	0.59
Richfield	Sevier	T.	T.			.20		.66		.40	T.				T.								.20									1.46
Richins Summit	Weber	T.	T.	.30		T.	.24	.07		T.	T.	1.25	T.	.05							.07		T.								.17	2.35
Saltair	Great Salt Lake	.51		.30	.17	.09	.09			.09	.41	.03		.12											.10						.03	1.94
Salt Lake City	Jordan	.59	.05	.20	T.		.06			.33	.03		.10	.10	T.		T.						.01	.01	.02						T.	1.50
Scipio	Sevier	.12	.46		T.	.77	T.	.31		.17	.32			.04																	.77	2.96
Silver Lake	Jordan																															
Spanish Fork Canyon	do																															
Thistle	do																															
Tooele	Great Salt Lake	.22	.49	.47	.03		T.	T.		.09	.52		T.	.03	.01		.02				.02	T.			T.						.09	1.99
Utah Lake Pump'g Sta	Jordan	.29	.23		*	.65	.05	.05		.38	.07	.02		.10			.05		.07				.02	.02							*	.32	2.32
West Canyon	Desert		.35				*	*	*	.50	*	*	.70										*	*	.20						.10	1.85
Oregon.																																
Ana River	Interior Drainage		T.		T.	.02	.10	.10		T.			.15							T.	.01									.06	.28	0.72
Burns	do				.40		.21	.30	.40			.41														.36					.21	2.29
Burns Mill	do		.05		.85	.02	.01	.60	.40			.20								T.						.40						2.53
Cecils Ranch	do																														.06	1.01
Christmas Lake	do	T.			T.	.01	.05	T.	.09	.08		.50	.05								T.	.01				.16						
Paisley	do		T.	.02		.01	.04	.01	.08	.21			.01							.02	.08	.01						.02	.03	.23	0.77
" P " Ranch	do								.05					.44																.12	0.61
Silver Lake	do		T.		.15	.20	.15						.10									T.									.05	.05	0.70
California.																				T.					.10					2.19	.20	9.70
Boca	Truckee	.63	2.11		1.50	T.	.10	.38	.59	2.23	.30										*	0.07									*	3.01	4.22
Bodie	East Walker				0.76		0.26	0.12																								
Bridgeport	do																															
Donner Ice Camp	Truckee																														2.25	4.25
Fales Hot Springs	West Walker	.28				.51		.21		.65	.05										.30										.50	2.31	8.13
Hobart Mills	Truckee	1.10	.25			1.11		.62	.15	1.60	.26										.06		.06			.11					*	2.00	5.40
Lundy	East Walker	.50				.30			*	2.50											.10												
Markleeville	Carson	1.10	.18				1.40		.05	.95			.04								.25										.85	1.84	6.66
Shields Ranch	West Walker																									T.	T.					
Silver Creek	Carson	1.24	.21			T.	1.42		.09	1.00			.06								.32				.02	.02				.03	.91	1.90	7.22
Tahoe	Truckee	1.22			*	1.30		.53	.30	1.70	.40										.22					.15				1.10	2.00	8.92
Truckee	do	1.00	.01		.80	1.40		.29	2.00	1.60	1.00									.30	.05	.05								2.00	2.40	12.21
Nevada.																																
Austin	Reese																				.05										.08	0.83
Battle Mountain	Humboldt	.56		T.		.20							T.																	1.00	.10	1.30
Beowawe	do				.10	.10																										
Buckskin	Walker	.08	.06		.09		T.			.13													T.								.10	0.81
Carlin	Humboldt	.07	.10		.10	.20	.20			.04			T.																			

TABLE 2.—*Daily precipitation for December, 1909. District No. 10*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Nevada—Cont'd.																																	
Carson Dam	Carson	.21				T.	T.	T.		.37											T.	T.				0.5				T.	T.	.33	0.96
Cherry Creek	Humboldt	.41	.22			.14		.15		.72			.07				T.				.03	.05	.28									.04	2.11
Clover Valley	do	2.00				.15	T.	.21		.24	.08		.20				.05				.11											T.	3.04
Cobre	do																																
Columbia	Desert					.01			.01												*	.05										.20	0.27
Dutton	Humboldt			.80											.40									.40						.20		1.80
Elko	do																																
Ely	do						.11	.21		.25	T.		T.								T.										1.30	1.87
Eureka	do	.25	.15	.09		.04				.07	.04		T.	.02				T.			T.										.05	0.71
Fallon	Carson	.24	.04		T.					.08											.03	.01				.07				T.	.83	1.30
Fernley	Truckee	.23	T.	T.				T.		T.	T.										T.	T.				T.	T.			T.		
Gardnerville	Carson	T.	.40			.40			1.20	.30											.30	.60				.40				*	1.20	4.80
Geyser	Humboldt												*	*	*	*	*	.30													.60	0.90
Glenbrook	Truckee	.50					1.00		1.00		.10										.40					.05					1.50	4.55
Golconda	Humboldt	.50	.20					.20	.10	.10																					.15	1.25
Halleck	do	.40																											.50			0.90
Hamilton	do																																
Humboldt	do																																
Jean	Desert									.40	.39										.20	.40		.20						T.	T.	1.59
Leetville	Carson	.50								.25											.10					.10					.50	1.45
Lewer's Ranch	Truckee	*	2.85				1.20		2.35	*	.10									.50						.30				*	3.30	10.60
Lovelock	Humboldt			.02						.25																					.01	0.28
McAfee's Ranch	Desert																					.20											0.20
Millett	Reese	.40				.08	.15	.12																									0.75
Mina	Desert				T.				.40											.10											.70	1.20
Mount Rose Ranch	Truckee	.80	.01		*	.88	.01	.15	.02	.90	.25	T.								*	.30					.02				2.40	1.70	7.44
Palmetto	Desert																																
Paradise Valley	Little Humboldt	.25	.30	.15				.60	.60																						.60	.60	3.10
Potts	Reese	.30	.20	T.		T.	.12			.15	T.		T.								T.												0.77
Quinn River Ranch	Humboldt	.20	.05		.04	.06		.12	.03	.33											T.		.02								.14	.35	1.43
Reno	Truckee	.28			.03	.04	T.		.06	.35											.05	T.	T.			T.					.37	1.24	2.42
Smith	West Walker	.18		.17	.07		T.															.10				T.	T.			.90		.46	1.88
Soda Lake	Carson	.29	.04			.02		.02		.25											.04	.01	T.	T.		.07	T.	T.	T.		T.	.62	1.36
Sweetwater	East Walker																																
Tecoma	Humboldt	.20		.20				.20	.05				.05				.05		.10														0.85
Tonopah	Desert	.01				.04		.04	.03	.01											.01	.02											0.16
Wabuska	Walker	.05	T.							.10											.01	T.				.02					.03	.01	0.22
Wells	Humboldt	.35				.20	.40	.20	.20	.10							.10			.05			.05										1.65
Willow Point	Little Humboldt	.04	.02			.25		.30	.50												.10										.50	.30	2.11
Winnemucca	Humboldt	.99	.01		T.	.05	.06	.13	.09	.11	T.	.01	T.							.03	.03		.08	.01							.27	.57	2.44
Yerington	Walker																																

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 10, Great Basin.*

Date.	Wyoming.				Weston, Idaho.		Utah.																		Burns, Oreg.		Elko, Nev.	
	Border.		Evanston.				Corinne.		Deseret.		Government Creek.		Marysvale.		Modena.		Ogden (1).		Parowan.		Provo.		Salt Lake City.					
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	34	14	35	26	32	21	35	26	44	29	47	20	51	30	40	32	37	32	50	15	41	30	43	34	44	18	53	18
2...	31	9	32	11	31	10	35	22	36	29	46	20	47	23	42	22	37	26	47	12	43	25	41	22	31	11	42	9
3...	20	− 4	11	− 9	20	− 4	24	16	29	15	34	4	25	10	25	14	27	12	45	10	.....	.....	26	15	26	2	26	6
4...	15	−11	10	−17	18	− 9	25	10	23	5	30	− 2	26	7	28	5	23	11	44	7	30	11	25	13	24	9	26	− 4
5...	20	− 1	12	−11	26	9	30	14	28	18	23	12	24	14	23	12	27	15	37	3	.....	.....	30	23	24	−10	33	5
6...	23	1	19	− 4	27	1	28	16	31	14	32	10	32	12	25	3	29	22	33	10	.....	.....	28	18	24	− 2	37	−10
7...	22	− 1	19	− 3	31	1	32	5	35	20	29	13	38	12	28	20	32	12	30	11	.....	.....	33	24	32	23	37	11
8...	32	5	41	21	36	26	35	7	36	13	39	24	35	5	31	23	39	29	34	18	.....	.....	41	31	38	24	37	9
9...	32	23	32	23	37	0	25	15	47	30	39	30	45	27	38	27	38	26	40	22	.....	.....	45	32	36	26	42	20
10...	32	10	32	12	37	17	24	16	42	19	39	10	25	5	36	9	36	22	30	10	.....	.....	32	23	30	4	36	5
11...	17	−11	23	− 6	30	1	30	8	34	11	33	5	27	− 8	31	12	29	15	40	9	45	1	30	18	30	5	32	−14
12...	22	− 2	30	− 2	28	7	35	10	33	13	33	10	26	− 2	35	10	29	17	41	8	.....	.....	29	21	30	9	36	− 6
13...	31	19	30	22	37	18	36	12	39	23	36	24	37	12	40	19	38	25	40	7	.....	.....	35	25	24	7	40	− 4
14...	27	10	26	15	33	6	24	5	37	20	32	13	32	10	33	17	32	22	40	6	.....	.....	30	22	36	2	31	−14
15...	18	−12	29	− 5	21	− 3	32	− 1	34	10	32	6	29	7	32	8	27	10	39	9	.....	.....	30	16	24	− 2	22	− 8
16...	11	−11	20	− 6	22	− 3	24	7	26	10	23	2	27	− 6	30	8	22	9	35	0	.....	.....	23	15	25	− 2	24	− 9
17...	5	−23	10	−17	20	−16	19	2	24	2	20	− 5	18	1	23	6	15	0	33	8	31	1	21	8	26	0	26	0
18...	10	−12	15	−26	16	−18	17	− 6	22	0	21	− 9	16	−20	23	1	12	1	25	− 5	18	− 7	18	4	29	2	26	−10
19...	15	− 5	18	− 8	20	− 9	21	− 2	23	0	25	− 1	22	−12	26	1	18	6	30	0	20	− 4	22	7	22	6	26	− 5
20...	15	−10	11	− 1	25	− 3	19	5	29	10	26	1	23	5	24	6	22	12	31	0	30	13	26	16	32	− 1	26	9
21...	4	−27	8	− 1	24	3	22	6	26	13	24	5	24	7	24	16	24	18	26	1	29	15	28	20	26	− 1	25	−15
22...	13	−11	18	−10	23	− 3	25	2	25	16	27	7	26	− 3	28	4	22	9	30	9	35	17	28	17	28	− 2	28	−11
23...	5	−18	21	− 9	23	− 1	24	5	25	15	22	1	29	3	28	− 6	24	14	29	14	28	12	28	18	30	4	26	− 4
24...	15	−16	20	− 6	22	− 6	21	1	29	13	27	1	18	−10	17	−11	26	15	31	5	26	8	26	16	32	5	26	−13
25...	2	−25	25	− 7	25	− 6	23	2	31	0	27	0	35	− 8	33	− 5	23	16	38	3	27	4	29	13	30	8	32	−20
26...	20	−21	34	− 2	25	− 3	24	5	33	6	29	1	33	− 2	35	− 3	26	16	45	3	26	10	29	16	26	5	37	− 7
27...	25	−16	35	9	30	11	32	− 3	32	6	29	4	37	−10	32	− 6	24	6	35	4	24	2	28	16	20	−11	36	−15
28...	18	− 9	26	− 6	26	0	20	− 5	33	1	30	4	27	− 9	25	− 3	22	6	37	5	25	− 1	27	12	20	− 7	36	− 9
29...	7	−15	32	− 7	17	− 5	22	− 7	32	0	32	1	28	− 8	28	0	18	− 6	40	6	29	− 1	25	11	24	− 2	34	− 8
30...	5	−30	38	− 1	19	− 5	21	− 4	24	6	37	6	33	− 2	42	5	23	5	42	5	23	4	24	12	26	0	26	− 3
31...	37	−13	36	22	37	15	37	18	48	24	40	12	40	26	41	33	39	19	48	20	50	21	48	22	24	5	48	22
Mns	18.8	−6.9	24.1	−0.1	26.4	2.6	26.8	6.7	31.0	12.7	30.7	7.4	29.8	3.7	30.8	9.0	27.1	14.3	37.1	7.6	.....	.....	29.9	18.1	28.5	4.2	32.6	−2.5

Date.	Nevada.																									
	Ely.		Eureka.		Fallon.		Jean.		Lovelock.		Millett.		Mina.		Quinn River Ranch.		Reno.		Tecoma.		Tonopah.		Winnemucca.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	54	18	48	34	55	29	60	27	62	15	52	28	54	28	55	37	51	41	56	18	48	39	44	32
2	47	20	42	12	49	29	70	28	60	14	33	23	55	17	48	22	41	23	48	8	41	15	34	21
3	41	8	20	6	31	18	58	31	50	11	26	15	30	5	31	15	31	15	46	8	20	10	29	14
4	40	5	20	− 4	32	12	43	13	64	18	27	15	32	20	25	3	36	14	44	6	24	9	32	10
5	45	12	25	14	42	26	67	29	65	10	29	20	30	7	33	16	37	16	46	8	21	17	36	20
6	48	15	25	3	33	13	63	21	57	8	21	− 6	40	26	26	−10	35	8	44	6	20	14	25	8
7	45	16	32	16	41	12	45	26	40	12	34	19	33	26	31	15	44	25	48	8	26	18	36	22
8	42	8	30	20	45	32	41	33	53	11	41	13	49	29	39	25	49	34	52	10	28	23	40	29
9	44	6	37	22	45	35	55	36	57	14	39	21	40	11	42	30	44	30	50	12	39	25	43	29
10	31	8	30	10	40	23	63	32	60	18	27	4	37	10	40	13	40	25	46	5	28	20	40	19
11	31	− 7	31	4	41	19	52	30	65	9	29	10	36	12	35	10	43	21	42	3	31	19	36	15
12	41	9	39	10	37	19	54	33	38	22	40	12	43	11	36	26	55	29	42	6	40	27	38	26
13	36	− 1	38	15	46	18	64	29	43	22	34	6	40	16	48	20	43	27	46	− 5	36	27	43	23
14	38	1	31	4	39	18	68	35	49	25	31	4	40	14	49	11	39	26	44	− 7	29	18	36	17
15	36	3	34	4	38	13	65	32	39	13	37	5	40	15	36	8	41	20	44	− 8	29	18	32	11
16	42	2	30	4	38	12	69	33	.....	.....	32	13	35	22	42	6	41	17	46	8	30	18	37	12
17	31	5	26	2	35	12	51	32	.....	.....	30	− 2	37	10	42	16	37	18	42	15	23	14	31	14
18	21	−10	26	− 6	39	12	64	20	.....	.....	22	− 1	36	9	47	5	41	16	40	12	24	10	37	10
19	24	0	24	2	33	11	.....	.....	.....	.....	27	10	30	12	37	2	33	16	34	19	26	15	29	10
20	18	− 5	21	10	29	21	46	12	.....	.....	22	5	33	10	29	12	28	23	32	19	22	16	27	13
21	20	2	23	1	32	18	37	25	.....	.....	24	5	30	9	35	− 2	30	13	32	22	26	14	26	2
22	24	0	29	2	38	21	46	27	.....	.....	23	− 6	35	15	29	11	37	17	24	18	22	18	24	8
23	22	− 5	28	3	32	26	42	17	.....	.....	27	− 3	43	21	37	11	36	18	36	18	23	17	26	7
24	20	− 8	30	2	35	8	37	6	.....	.....	23	− 9	43	11	27	16	38	15	38	16	26	14	28	1
25	38	4	32	11	28	15	34	1	.....	.....	26	− 4	40	6	28	5	30	21	38	16	30	18	29	5
26	36	6	38	11	29	21	36	11	.....	.....	32	5	35	12	35	17	36	19	38	14	30	22	37	10
27	40	10	40	10	27	16	38	3	.....	.....	29	− 6	32	14	27	17	29	18	42	12	27	13	25	13
28	45	6	35	10	25	20	36	12	.....	.....	30	− 5	34	16	22	14	27	16	40	8	28	14	20	12
29	40	5	40	9	25	21	44	11	.....	.....	30	− 1	40	20	20	8	31	17	43	14	38	22	22	9
30	51	14	42	17	27	20	43	20	60	28	27	7	42	29	21	6	43	18	42	12	42	31	25	5
31	48	12	41	31	34	24	56	32	57	27	44	25	45	29	35	17	42	33	48	8	41	30	36	25
Mean	36.7	5.1	31.8	9.3	36.1	19.2	51.9	23.2	....	.....	30.6	7.3	38.4	15.9	35.1	13.0	38.4	23.9	42.4	10.0	29.6	18.9	32.4	14.6

Climatological Data for December, 1909.

DISTRICT No. 11, CALIFORNIA.

Prof. ALEXANDER G. MCADIE, District Editor.

The month was one of typical winter weather in this portion of the Pacific coast. There were frequent and heavy rains, and at intervals heavy frosts. There were more than the usual number of frosts and the temperature on several mornings fell below the danger point in the citrus fruit belt. The mean temperature of the State as a whole was nearly 3° below the normal, but in the southern counties a better idea of the general character of the month can be had from the number of temperatures below the freezing point that were recorded even at points close to the coast. Low morning temperatures at points in the interior are, of course, not infrequent during the winter months, but coast temperatures as a rule seldom fall below 32°. The precipitation was much above that of a normal December. In a general average for the State the rainfall, including melted snow, was about 50 per cent in excess of that of a normal month. The precipitation varied from nothing at points in San Bernardino County to over 20 inches in the northern coast and mountain sections. The greatest snowfall recorded was at Tamarack, the monthly total being 92 inches, and the next greatest was 76 inches at Fordyce Dam. At the beginning of the month the snow covering, at elevations of about 7,000 feet and north of the 35th parallel, was fairly represented by a depth of 2 inches, while at the close of the month there was an approximate depth of 45 inches. There was not much melting and but a moderate run-off.

Comparing the present month with previous years, the following figures give the mean temperature: 1897, 44.4°; 1898, 44.4°; 1899, 45.8°; 1900, 47.3°; 1901, 47.4°; 1902, 46.6°; 1903, 48.0°; 1904, 47.2°; 1905, 45.3°; 1906, 47.3°; 1907, 48.3°; 1908, 43.2°; 1909, 43.3°. The month was therefore about as cool as the previous December and much cooler than any other December during the entire period. During the first decade temperatures were for the most part normal or slightly above, owing to the prevalence of southerly winds and the recurrence of barometric depressions over the northern half of the Pacific slope. During the second decade there was a noticeable change in pressure distribution, with a slow-moving or stagnant anticyclonic circulation. The winds were mostly from the north, and at times, as on December 13 and 18, strong. Frosts were frequent during this period, although the afternoon temperatures would sometimes rise to 70°. The period lasted until the 19th. One of the most interesting dates of the month was December 18, when a strong north wind, commomly known as "Santa Ana," thrashed the trees and fruits, whipping off, it is estimated, about 10 per cent of the oranges and lemons. This was followed by heavy frosts. At San Diego the temperature fell to 36° on the morning of the 19th, which is a very low temperature for that station and indicating temperatures below freezing in the lemon and orange districts back from the coast. Ample warning was given to the fruit interests. The third decade was one of unsettled weather, due to the passage southward of several minor depressions, the month closing with a well-marked storm which in the southern coast counties, by reason of the heavy rains and washouts due thereto, caused much damage. The rains continued into the first few days of January, resulting in floods in southern California. The property loss was estimated to be in the neighborhood of $100,000. The Santa Ana River overflowed its banks and much celery land was inundated. Transportation and power companies suffered and there was considerable interruption of general and local passenger service. It was said that the rainfall in the San Gabriel Canyon, as measured by the power company officials, was 10.50 inches in 26 hours and was the heaviest recorded in a period of 15 years. Considerable damage was done to telegraph and telephone wires in all sections. The following heavy 24-hour rainfalls were reported on the 31st: Azusa, 4.40 inches; Claremont, 2.85; Glenn Ranch, 3.89; Los Angeles, 2.15; Lowe Observatory, 8.50; Lytle Creek, 7.50; Mono Ranch, 4.64; Newhall, 4.46; Ojai Valley, 4.87; Ozena, 4.00; Pasadena, 3.28; Rialto, 6.70; San Bernardino, 2.90; Santa Barbara, 2.30; Sierra Madre, 3.85; Surrey, 4.30; Upland, 4.00.

The following notes on conditions during December are contributed by cooperative observers:

Azusa.—The rain on the 31st, ending January 1, amounted to 6.11 inches, and caused severe floods. The San Gabriel River was a raging torrent. Electric tracks were washed out, one span of the county bridge went out, and a small bridge on the Santa Fe Railroad went down with the engine.—*Alfred P. Griffith.*

Durham.—The snowfall on the 5th was estimated to be 6 inches, and remained on the ground in sheltered places 3 or 4 days. The temperature was unusually low.—*R. W. Durham.*

Independence.—December was the coldest on record at this station, with a mean monthly temperature of 25.9°. Old residents state that on December 3, 1873, there was a cold wave here with temperatures equally as low as the current month and a snowfall of about 4 feet. The ground, where free from snow, is frozen to a depth of from 10 to 15 inches. This is unprecedented and unlooked for. The water mains are placed at a depth of 12 to 18 inches, and half the town is without water from the frozen mains. Owens River is not frozen over, but ponds and lakes are entirely frozen over.—*E. M. Brooks.*

Madeline.—The month has been unusually cold and the ground is frozen 12 inches deep. Ice is being cut 14 inches thick.—*J. H. Williams.*

Magalia.—The winter weather to date has been much more severe than for several years past, with more rain and snow.—*A. F. Rice.*

Orland.—Progress on the Orland Project for the month has been satisfactory. All contractors are at work on the distribution system. A small force is at work on the south main canal, enlarging and building concrete structures. The East Park dam is at an elevation of 27 feet above the creek bed.—*M. E. Ready.*

Summerdale.—The heaviest rain on record at this station for any 24 hours, 7.52 inches, fell on the 31st. The total precipitation for the year 1909 is 89.16 inches.—*J. H. Lowry.*

Three Rivers.—On the morning of the 9th the water in the river was higher at this point than it has been for 18 years.—*E. D. Barton.*

Tulare.—There were no killing frosts during the month, although the temperature fell to 30° on the 4th and 15th, and 32° on the 3d, 16th, and 17th.—*John Tuohy.*

Very severe winter conditions have also been experienced on the Klamath Project. Fortunately we never contemplate much work at this point during the winter months, as there is always more or less frost. We had, however, planned to do a good deal of work along the southern shore of Tule Lake, using a large power launch as the principal means of transportation to this remote locality. Tule Lake seldom freezes over; but I understand this year a large part of the lake has frozen over and operations have been so far rendered impossible.

Severe weather conditions have also been reported as far south as Fallon, Nev.—*E. G. Hopson, Supervising Engineer.*

EXCESSIVELY HEAVY PRECIPITATION IN CALIFORNIA DURING 1909.

	Inches.
Bear Valley, Nevada Co.	119.39
Blue Canon	110.72
Bowmans Dam	113.85
Branscomb	130.14
Brush Creek	104.65
Camptonville	136.38
Deer Creek	123.31
Delta	114.85
Downieville	101.64
Fordyce Dam	125.28
Head Dam	100.14
Inskip	134.68
Kennett	115.92
La Porte	141.40
Magalia	150.62
Monumental	*153.54*
Nimshew	103.26
Pilot Creek	117.61
Stirling City	108.63
Upper Mattole	121.79
West Branch	119.45
Woodleaf	125.28

The greatest previous recorded annual precipitation was 139.20 inches at Monumental in 1907.

THE RAINFALL OF HETCH HETCHY VALLEY.

By Prof. ALEXANDER G. McADIE, San Francisco, Cal.

The Hetch Hetchy Valley, the Tiltill Valley, and the Grand Canyon of the Tuolumne are located in the northern portion of the Yosemite National Park. The Park, together with the Stanislaus National Forest to the west and the Sierra National Forest to the south, embraces large portions of Tuolumne, Mariposa, and Madera conties, Cal. The Hetch Hetchy Valley is in latitude 37° 58′ N., and longitude 119° 45′ W. The accompanying map (fig. 4), compiled from data furnished by the United States Forest Service and issued by the State Mining Bureau, Lewis C. Aubury, State Mineralogist, dated May, 1909, shows the boundaries of the portion of the park in Tuolumne County and the relative positions of the Hetch Hetchy Valley and Lake Eleanor. The proposed reservoir sites for the city of San Francisco are Lake Eleanor with an area of 1,159.21 acres and the Hetch Hetchy, about five miles to the southeast on the Tuolumne River, with an area of 1,170.45 acres. The elevation of Lake Eleanor is, approximately, 1,433 meters (4,700 feet) above sea level. The floor of the Hetch Hetchy is about 1,128 meters (3,700 feet) above sea level. The general watershed has an elevation exceeding 1,830 meters (6,000 feet), and in some parts, as Rancheria Mountain, is 2,743 meters (9,000 feet). The general drainage system consists of Tuolumne River and Cherry Creek. Into the former drain Falls Creek, Tiltill Creek, Rancheria Creek, Piute Creek and numerous tributaries of the upper Tuolumne. Into Cherry Creek empties Eleanor Creek, McGill Creek, and Frog Creek by way of Lake Eleanor. The estimated area of the Cherry Creek watershed is 103 square miles; of the Eleanor watershed, 84 square miles; of the Hetch Hetchy watershed, 452 square miles. It is estimated by engineers[1] that the combined drainage area above Lake Eleanor and Hetch Hetchy Valley, covering over 500 square miles, is sufficient to supply more than 200,000,000 gallons of water daily. The storage reservoir sites are said to be the best that can be found in the mountains and from 4 to 10 times larger than others suggested. The drainage area lies high, is beyond contamination, can be visited during few months in the year, and then only by small camping parties. It has been pointed out that the construction of such storage reservoirs will be doubly beneficial in restraining the devastating floods that so frequently overrun the lowlands of the San Joaquin, on the one hand, and on the other, will afford a supply of water available during the long dry season, and especially during years of minimum rainfall or the so-called dry winters.

The photograph by J. F. Kinman, reproduced in fig. 1, shows the present beauty of the Hetch Hetchy Valley, as do also the views of Wapama Fall and Kolana Rock, loaned by the Sierra Club, and reproduced in figs. 5 and 6.

The normal annual rainfall in the Sierra Nevada ranges from 101 centimeters to 152 centimeters (40 to 60 inches). Records covering a period of 20 years or longer show that there is a well-marked increase in the amount of precipitation from the floor of the Great Valley of California to elevations of about 6,000 or 7,000 feet above sea-level, where a maximum is reached. It has been shown that along the line of the railroad from Sacramento to Summit, the rainfall increases from 53 centimeters (20.87 inches) at Sacramento, elevation 22 meters (72 feet), to 118 centimeters (46.64 inches), at Colfax, elevation 738 meters (2,421 feet), or an increase of 1 centimeter for every 11 meters of ascent, or an increase of about 1 millimeter in depth of precipitation for every meter rise in altitude. With further increase of altitude the rate of increase of precipitation is smaller. Thus at Cisco, elevation 1,810 meters (5,939 feet), the mean annual precipitation is 126 centimeters (49.68 inches). At Summit, elevation 2,139 meters (7,017 feet), the average annual precipitation is lower than that of stations of less altitude, being but 118 centimeters, or 46.58 inches.

[1] J. D. Galloway, Transactions of Commonwealth Club of California, November, 1909, page 364.

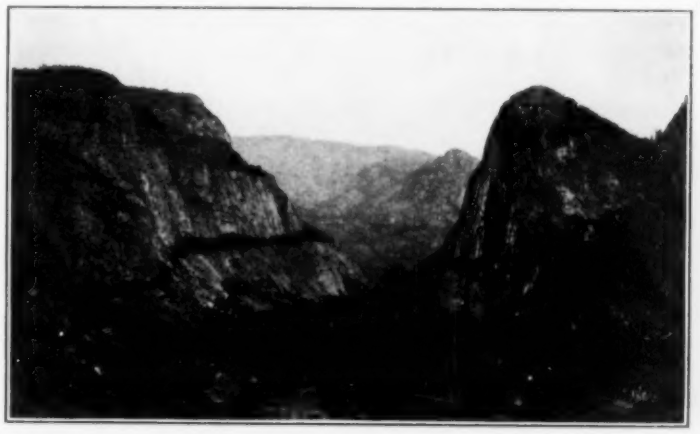


FIG. 1.—General view of the Hetch Hetchy Valley. Photo loaned by the Sierra Club.

Making a cross-section farther south we find that at Modesto, elevation 27 meters, the total precipitation during a year of normal rainfall, was 21 centimeters; and at Oakdale, 48 meters elevation, for the same period, 21 centimeters. Assuming that this value fairly represents the precipitation on the floor of the Great Valley, we find that in a rise of about 200 meters the precipitation increases nearly 100 per cent. Grouping the stations at Milton, 183 meters; and Jacksonville, 210 meters, we obtain a probable value of 36 centimeters. In a third group are Jamestown, 449 meters; Angels Camp, 468 meters; and Mokelumne Hill, 473 meters, with a mean precipitation of 47 centimeters. Above the 500 meter level are 5 stations, as follows:

Station.	Elevation.	Precipitation.
	meters.	*cm.*
West Point	710	54
Penstock	1,143	56
Yosemite	1,202	44
Crockers	1,357	75
Summerdale	1,607	96

For levels under 500 meters, there appears to be an increase of 1 centimeter for every 16 meters of elevation. For levels above 500 meters the rate is uncertain, partly because of the difficulty of accurately determining the water equivalent of snow and partly because of canyon effects, as in the Yosemite Valley.

Owing to the peculiar topography of California and the varying inclinations of mountain ranges to the rain-bearing winds, isohyets are irregular and less certain than in sections where less diversified conditions prevail. In other words, both the intensity and frequency of precipitation are materially modified by the conditions referred to above, and it is also to be remembered that our measurements of depth of snowfall and conversion to water are open to criticism. Again, the elevations are considerable and the population sparse in these Sierra sections. Due allowance must therefore be made as to the accuracy of the isohyets drawn in fig. 2.

Actual records at Lake Eleanor and Hetch Hetchy are limited to the present season and are given in full on the following pages. An effort was made to install two seasonal snow gages in order that the water equivalent of the snowfall of the winter of 1909–10 might be obtained; but, unfortunately, owing to a misunderstanding of the purpose by those in charge

of the Park, the installation was delayed until a time when it was impossible to carry out the work. It is probable that the coming season will find these gages in place and records of the snowfall, or rather its water equivalent, available.

RECORD OF OBSERVATIONS AT LAKE ELEANOR, TUOLUMNE COUNTY, CAL., LATITUDE 37° 59′ N., LONGITUDE 119° 53′ W.

Observations at Lake Eleanor are made daily at 4 p. m., Pacific time, with United States Weather Bureau instruments, by Mr. O. J. Todd, of the engineering corps of the city of San Francisco, under general direction of Dr. Marsden Manson. The record, presented in Table 1, begins on October 19, the date of installation of instruments. It is recorded that, previous to the beginning of instrumental records, October 1 and 2 were rainy days; and the other days, until the 18th, were fair or clear:

There are three stations the records of which may be used in studying the precipitation of the section under discussion. The records at Summerdale, Mariposa County, and Crockers, Tuolumne County, cover a period of about 13 years and are believed to be fairly representative as well as accurate. The record from Yosemite covers but a few years, and with the exception of the last two years, during which time the present observer has faithfully recorded the amounts, is of somewhat doubtful value. These records are given in Table 2.

The accompanying relief map of the Yosemite and Hetch Hetchy valleys (fig. 3) was photographed by the writer through the courtesy of Dr. Marsden Manson, City Engineer of San Francisco.

The accompanying sketch of the Tuolumne basin (fig. 2) is based upon a map compiled for the California Water and Forest Association, published in 1900. The isotherms and isohyets are based upon all available records of the Weather Bureau, as contained in the monthly climatological summaries of the California section.

The accompanying Table 3 of seasonal rainfalls near the Tuolumne River Basin was prepared by Dr. Marsden Manson, City Engineer of San Francisco. The records are those of the Weather Bureau; but the season is computed from September 1. The data are chiefly interesting to engineers. It is understood that this table will be used in the preparation of a water report to the Honorable Secretary of the Interior.

TABLE 1.—*Observations of temperature and precipitation at Lake Eleanor, Tuolumne County, Cal.*

Date.	Maximum.	Minimum.	Range.	Precipitation.	Date.	Maximum.	Minimum.	Range.	Precipitation.
1909.	°F.	°F.	°F.	*Inches.*	1909.	°F.	°F.	°F.	*Inches.*
October 19	72	44	28	0.00	October 26	73	35	38	0.00
20	64	32	32	0.00	27	74	35	39	0.01
21	63	32	31	0.00	28	60	35	25	0.10
22	65	31	34	0.00	29	58	26	32	0.44
23	65	33	32	0.00	30	49	21	28	0.30
24	68	34	34	0.00	31	62	32	30	0.00
25	71	36	35	0.00					
November 1	62	32	30	0.00	December 1	48	45	3	1.77
2	64	34	30	0.00	2	45	33	12	0.76
3	62	31	31	0.00	3	36	16	20	0.00
4	69	31	38	0.00	4	34	12	22	0.00
5	66	28	38	0.00	5	37	24	13	1.12
6	60	26	34	0.83	6	34	4	30	0.00
7	59	28	31	0.00	7	41	25	16	1.32
8	58	30	28	0.00	8	40	26	14	0.35
9	55	32	23	1.32	9	42	32	10	3.00
10	42	31	11	1.10	10	41	21	20	0.37
11	39	32	7	0.20	11	53	15	38	0.00
12	52	24	28	0.18	12	54	26	28	0.00
13	41	26	15	0.00	13	56	20	36	0.00
14	40	24	16	0.75	14	56	21	35	0.00
15	43	10	33	0.00	15	60	27	33	0.00
16	56	17	39	0.00	16	50	24	35	0.00
17	63	17	46	0.00	17	49	22	27	0.00
18	64	27	37	0.00	18	43	16	27	0.00
19	48	34	14	0.30	19	40	14	26	0.00
20	54	30	24	0.12	20	37	26	11	0.15
21	53	42	11	2.00	21	40	11	29	0.00
22	59	36	23	0.00	22	37	18	19	0.00
23	59	32	27	0.00	23	45	16	29	0.00
24	59	34	25	0.20	24	44	13	31	0.00
25	48	33	15	1.53	25	42	19	23	0.00
26	40	30	10	0.53	26	48	17	31	0.00
27	47	20	27	0.00	27	54	17	37	0.00
28	55	28	27	0.00	28	58	20	38	0.00
29	58	40	18	0.00	29	60	21	39	0.00
30	53	31	22	0.04	30	44	33	11	0.41
					31	43	32	11	3.95
Sums.....	.....	.....	.....	9.10	Sums.....	.....	.....	.....	13.20
Means.....	54.3	29.3	25.3	.....	Means.....	45.8	21.5	24.3	.....

TABLE 2.—*Monthly, seasonal, and annual precipitation, 1896–1909.*

SUMMERDALE, MARIPOSA COUNTY, CAL. (Elevation, 5,270 feet.)

Season.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	Seasonal.	Year.	Annual.
1896	.....	.....	.....	.....	.....	.....	21.56	0.40	6.39	0.21	1.45	0.00	.....	1896	58.80
1896—97	0.36	1.36	1.28	2.53	9.66	4.56	4.42	17.66	11.35	1.13	0.28	0.63	55.26	1897	47.84
1897—98	0.00	0.00	0.08	5.02	2.80	4.57	2.60	7.25	3.36	0.53	3.18	0.00	29.39	1898	24.33
1898—99	0.00	0.00	1.93	1.20	1.64	2.64	7.96	1.24	18.66	1.70	0.99	1.79	39.75	1899	60.35
1899—1900	0.00	0.02	0.00	7.11	7.25	13.63	7.05	0.72	6.36	5.50	1.87	0.07	49.58	1900	52.59
1900—01	0.00	T.	0.75	9.57	18.91	1.79	24.46	18.57	3.00	5.76	2.31	0.04	85.46	1901	68.71
1901—02	0.01	T.	3.23	4.67	3.51	2.85	1.89	13.02	8.19	7.03	1.33	0.11	45.84	1902	47.29
1902—03	T.	0.00	0.00	4.85	6.92	3.95	14.13	3.70	11.83	3.37	0.79	0.29	49.83	1903	42.72
1903—04	0.00	0.00	0.00	0.66	5.90	2.05	2.60	14.96	17.09	5.37	0.73	0.02	49.38	1904	61.22
1904—05	0.00	0.40	3.52	6.51	0.63	4.39	3.38	9.50	10.53	2.56	3.80	0.02	50.24	1905	36.80
1905—06	0.00	0.00	0.55	0.00	4.30	2.16	26.41	8.20	25.41	5.91	11.23	0.62	84.84	1906	95.25
1906—07	0.00	0.00	0.19	T.	1.99	15.24	14.95	6.81	27.06	3.27	0.75	1.44	71.70	1907	67.09
1907—08	T.	0.07	0.02	3.16	0.21	9.35	5.39	6.39	12.44	1.75	3.50	0.00	42.28	1908	37.97
1908—09	.01	0.00	1.04	1.85	2.36	3.24	34.49	14.02	7.73	0.86	0.06	.....	.....	1909	.....
Averages	0.03	0.14	1.35	3.63	5.08	5.42	12.24	8.77	12.10	3.85	2.31	0.39	54.46	.....	53.92

CROCKERS, TUOLUMNE COUNTY, CAL. (Elevation, 4,452 feet.)

1896	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1896	.....
1896—97	0.00	3.10	0.14	2.30	9.18	5.41	6.56	15.97	21.80	1.33	0.00	0.75	66.54	1897	59.45
1897—98	0.00	0.00	0.45	6.09	2.70	3.80	2.60	7.15	3.74	1.10	3.74	0.00	31.37	1898	25.75
1898—99	0.00	0.00	1.58	1.87	1.85	2.12	11.72	1.80	18.09	1.60	0.15	1.65	42.43	1899	66.14
1899—1900	0.00	0.00	0.00	11.50	7.45	12.18	5.98	1.18	4.28	3.56	1.80	0.47	48.40	1900	46.42
1900—01	0.00	0.00	0.62	9.71	17.43	1.39	16.99	15.71	3.03	6.35	3.81	0.00	75.04	1901	60.16
1901—02	0.00	0.00	3.28	4.59	3.90	2.50	2.33	15.03	8.55	6.54	1.80	0.00	48.52	1902	52.05
1902—03	0.00	0.11	0.00	5.27	7.83	4.59	13.04	4.94	15.04	2.63	0.46	1.55	55.46	1903	48.26
1903—04	0.00	0.00	0.50	0.16	6.77	3.17	1.87	17.10	19.56	6.06	0.00	0.00	55.09	1904	65.05
1904—05	0.00	0.00	6.51	7.91	1.09	4.95	3.62	7.60	11.32	2.70	3.03	0.00	48.73	1905	35.30
1905—06	0.00	0.00	0.85	0.00	3.80	2.38	22.52	9.61	27.26	5.58	10.79	0.75	83.54	1906	90.62
1906—07	T.	0.00	T.	T.	2.60	11.51	13.49	5.82	27.41	2.50	1.54	1.64	66.51	1907	64.55
1907—08	0.00	T.	T.	2.00	T.	10.15	4.74	5.19	4.42	1.60	3.69	T.	31.79	1908	29.35
1908—09	T.	0.00	1.24	2.30	2.92	3.25	29.67	13.70	7.19	0.06	0.00	0.87	61.20	1909	80.01
Averages	0.00	0.25	1.17	4.13	5.19	5.18	10.39	9.29	13.21	3.20	2.39	0.59	54.98	.....	49.47

YOSEMITE, MARIPOSA COUNTY, CAL. (Elevation, 3,945 feet.)

1904	.....	.....	.....	.....	.....	.....	2.99	13.95	12.53	4.88	0.00	0.00	.....	1904	49.36
1904—05	0.00	0.24	7.09	3.36	0.69	3.63	1.81	5.30	8.19	2.61	2.97	0.34	36.23	1905	.....
1905—06	0.00	0.01	0.86	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1906	.....
1906—07	.....	0.98	0.04	0.01	1.55	16.02	11.96	3.72	20.98	1.59	1.26	3.13	55.15	1907	54.97
1907—08	T.	0.47	T.	1.73	0.90	9.32	2.53	2.23	1.21	0.67	2.28	0.32	21.66	1908	17.28
1908—09	0.02	0.05	1.48	2.26	2.27	1.96	24.62	11.35	3.91	0.46	0.78	0.39	49.55	1909	.....
1909—10	0.00	T.	0.46	.....	10.15	13.12	.....	.....	.....	.....	.....	.....	.....	1910	.....
Averages	T.	0.30	1.66	1.84	3.12	7.81	8.78	7.31	9.36	2.02	1.46	0.84	40.64	.....	40.54

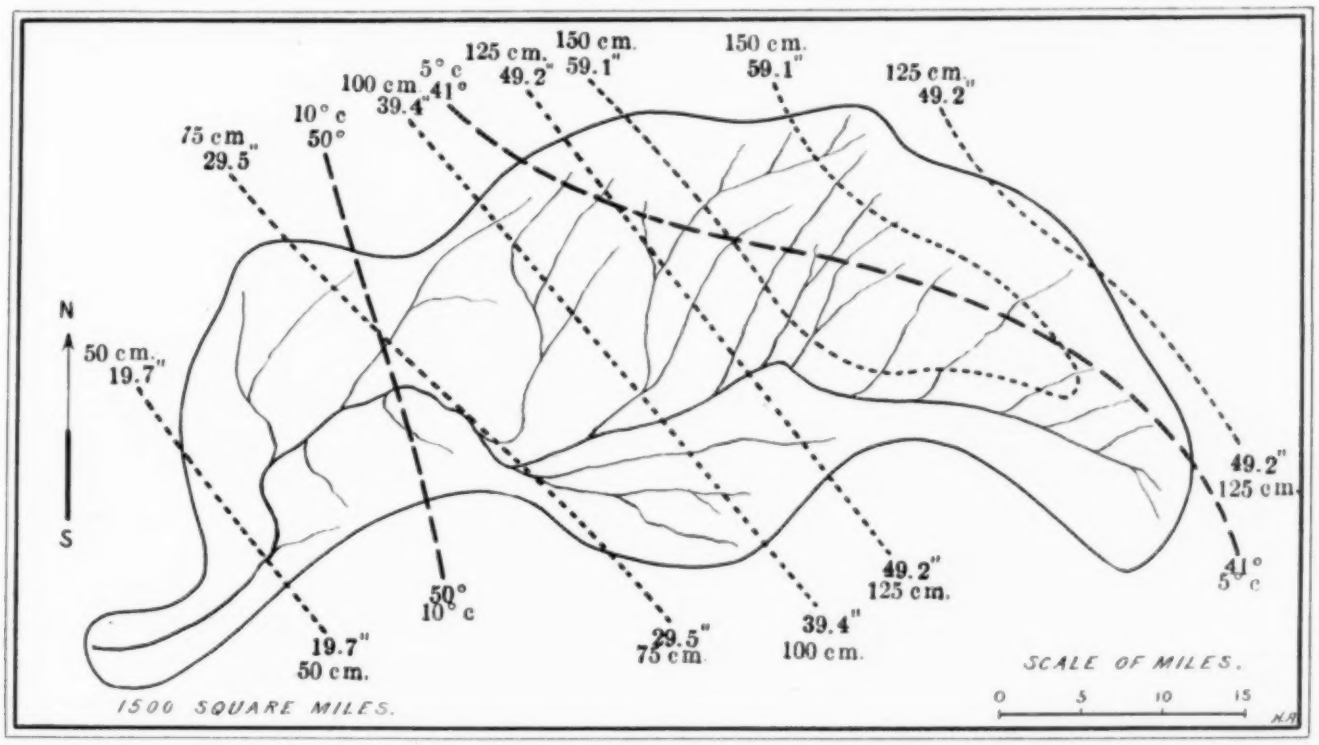


FIG. 2.—Isotherms and isohyets of the Tuolumne Basin.

TABLE 3.—*Seasonal rainfalls at various stations near the Basin of Tuolumne River, Cal., compiled from records of the United States Weather Bureau by Marsden Manson, C. E., Ph. D.*

Season.	San Francisco. Elev. 191 feet.	Sacramento. Elev. 71 feet.	Shingle Springs. Elev. 1,427 feet.	Stockton. Elev. 23 feet.	Independence. Elev. 4,398 feet.	La Grange. Elev. 293 feet.	Georgetown. Elev. 2,500 feet.	Merced. Elev. 173 feet.	Modesto. Elev. 90 feet.	Placerville. Elev. 2,109 feet.	Farmington. Elev. 111 feet.	Ione. Elev. 287 feet.	Jackson. Elev. 19.75 feet.	Fresno. Elev. 293 feet.	Bishop. Elev. 4,450 feet.	Second Garotte. Elev. 2,714 feet.	Sonora. Elev. 1,900 feet.	Mokelumne Hill. Elev. 1,350 feet.	Valley Springs. Elev. 675 feet.
1849–50	33.10	36.00	38.26																
1850–51	**7.44**	**4.71**	**17.13**																
1851–52	18.44	17.98	32.50																
1852–53	35.30	**36.32**	47.55																
1853–54	23.84	20.06	30.45																
1854–55	23.75	18.62	19.50																
1855–56	21.68	13.78	18.60																
1856–57	19.94	10.46	26.51																
1857–58	21.97	15.00	18.92																
1858–59	22.03	16.03	32.31																
1859–60	22.46	22.69	28.09																
1860–61	19.51	16.10	26.25																
1861–62	**49.27**	35.56	**77.30**																
1862–63	13.74	11.58	19.27																
1863–64	10.29	7.87	24.27																
1864–65	24.52	22.51	34.44																
1865–66	22.93	17.93	36.98																
1866–67	34.92	25.30	50.30		11.43														
1867–68	38.84	32.79	64.21	20.71	19.46														
1868–69	21.35	16.64		16.45	3.33														
1869–70	19.31	13.57		7.64	2.63														
1870–71	14.13	8.47		**6.73**	3.68	10.46													
1871–72	30.77	23.65		20.80	7.08	20.48			12.71										
1872–73	15.74	14.21		13.31	1.63	14.35	46.46	12.21	7.65										
1873–74	24.64	22.90		15.14	7.06	14.63	63.64	**6.94**	11.36	33.95									
1874–75	20.56	17.70		11.14	3.33	**10.29**	47.08	10.00	7.40	33.76									
1875–76	31.21	26.53		18.33	5.27	25.87	81.24	12.85	13.52	61.81									
1876–77	11.04	8.96		7.03	2.46	(5.74)	40.48	(3.03)	(4.30)	22.67									
1877–78	35.17	24.86		18.76		18.90	61.31	11.81	11.51	37.72	17.73	.....	33.44						
1878–79	24.46	17.85		11.46		11.54	60.96	5.83	8.48	38.70	13.46	17.00	27.78						
1879–80	26.63	26.47		15.34		19.50	70.40	11.89	12.88	56.21	16.94	21.79	37.88						
1880–81	29.86	26.57		14.68		15.12	65.82	11.59	8.40	48.04	13.20	17.26	29.97						
1881–82	16.14	16.51		9.69		14.51	54.14	8.58	6.64	42.46	13.09	19.11	28.87	6.91				21.15	
1882–83	20.12	18.11		15.26		15.98	45.94	9.81	10.03	36.56	16.80	16.08	27.44	9.33	.....	.....	.....	38.99	.....
1883–84	32.42	24.78		20.36		25.01	72.66	**22.03**	12.87	57.39	23.34	30.89	37.90	18.90	2.86	52.61	.....	24.04	.....
1884–85	18.12	16.58		9.62		11.89	50.01	7.18	6.40	36.53	**9.27**	14.06	21.20	7.20	1.81	29.50	.....	41.84	.....
1885–86	31.50	32.27		17.36		24.09	73.05	13.43	12.79	54.63	20.40	25.14	37.12	**19.45**	2.28	46.50	.....	20.86	.....
1886–87	18.82	13.97		7.83		11.01	41.32	6.20	**5.72**	33.32	9.44	14.72	.....	8.47	3.68	27.00	.....	19.61	.....
1887–88	16.75	11.56	22.79	10.81		11.52	36.16	7.08	6.58	32.87	11.39	**11.35**	.....	6.73	3.89	25.00	21.75	20.14	14.58
1888–89	23.85	19.95	28.79	12.99		14.43	36.79	7.80	7.61	35.73	11.49	14.41	40.72	7.99	4.60	27.25	25.66	**64.59**	**38.15**
1889–90	45.86	33.80	**71.01**	22.37		**30.34**	**36.80**	17.81	16.40	**70.23**	**24.83**	32.38	**50.17**	13.01	7.13	**67.25**	**67.39**	26.52	19.49
1890–91	17.68	15.81	30.10	10.09		(13.35)	40.24	8.92	7.49	24.10	15.46	13.66	33.64	8.25	8.60	36.02	32.29	28.95	19.03
1891–92	18.41	15.18	27.59	12.21		(12.82)	44.55	9.64	10.35	44.20	14.38	19.53	35.15	9.93	5.86	32.25	30.40	39.45	28.33
1892–93	21.77	23.95	41.37	15.89	8.38	19.37	74.93	10.98	14.17	63.97	23.11	21.69	19.41	11.10	7.43	47.25	43.76	37.24	26.32
1893–94	18.45	16.35	32.13	15.83	2.34	22.77	66.13	10.86	11.40	51.29	18.75	20.54	30.25	8.59	2.55	37.25	37.53	45.73	33.80
1894–95	25.71	24.15	41.73	19.78	4.48	22.36	71.99	12.63	16.40	60.51	21.46	23.66	33.42	14.67	3.83	52.00	45.95	31.05	21.21
1895–96	21.37	23.39	38.34	14.89		14.71	65.51	12.55	10.60	51.97	16.01	20.03	39.74	8.42	2.69	32.05	31.17	40.94	30.02
1896–97	23.30	17.13	45.72	12.44		19.80	66.52	11.36	11.63	50.83	18.65	23.60	32.70	10.32	4.13	37.79	38.23	**18.03**	**12.34**
1897–98	9.38	10.50	**14.60**	6.93		(10.57)	**31.90**	(5.76)	(3.87)	**21.51**	9.30	13.77	Closed	**4.94**	**1.69**	**20.35**	**21.04**	27.23	17.11
1898–99	16.87	15.06	28.65	14.45	1.54	12.83	46.70	7.82	9.35	32.06	14.09	20.03	.....	7.98	3.09	29.29	32.81	29.87	22.91
1899–00	18.47	20.22	35.08	16.24	3.70	(17.18)	55.67	11.25	11.91	41.57	17.94	21.51	.....	10.28	3.34	35.22	33.14	33.73	25.09
1900–01	21.17	20.21	38.28	16.74	6.51	(17.17)	53.99	11.42	14.62	46.70	.....	25.48	.....	11.33	**11.90**	55.75	46.79	28.18	21.94
1901–02	18.98	17.27	32.70	14.03	4.23	(14.58)	49.13	9.98	10.10	34.22	.....	20.19	.....	6.15	4.48	*30.50	28.42	31.28	26.03
1902–03	18.28	16.62	31.49	14.54	2.06	(14.04)	55.07	11.89	12.23	37.07	16.41	22.39	.....	8.50	2.68	.....	33.03	38.08	30.09
1903–04	20.67	16.94	49.28	15.07	2.66	(14.30)	79.53	8.36	8.85	49.80	15.36	21.52	.....	8.04	5.41	.....	34.47	31.74	29.86
1904–05	23.37	21.91	38.63	18.07	3.98	(18.50)	49.35	13.20	15.64	36.63	18.79	25.85	.....	12.09	6.64	.....	32.83	42.94	28.48
1905–06	20.61	23.93	45.40	18.68	6.79	(20.21)	76.23	17.76	12.55	53.95	19.46	30.88	.....	13.52	9.08	.....	*51.16	33.73	25.76
1906–07	26.00	24.04	50.63	**22.49**	4.17	(20.30)	82.76	16.38	**19.04**	59.85	24.37	**33.32**	.....	10.85	5.95	.....	*49.77	49.33	35.76
1907–08	17.36	12.20	20.59	11.18	6.01	(10.30)	38.06	8.41	9.79	27.11	10.04	14.27	.....	7.65	6.82	.....	(20.03)	18.90	14.26

Season.	Milton. Elev. 660 feet.	Oleta. Elev. 1,510 feet.	Oakdale. Elev. 156 feet.	Pilot Creek. Elev. 4,000 feet.	Kernville. Elev. 2,600 feet.	West Point. Elev. 2,326 feet.	Bodie. Elev. 8,248 feet.	Crocker's. Elev. 4,452 feet.	Storey. Elev. 296 feet.	Bear River. Elev. 5,800 feet.	Tamarack. Elev. 8,930 feet.	Jamestown. Elev. 1,471 feet.	Groveland. Elev. 2,828 feet.	Yosemite. Elev. 4,063 feet.	Coulterville. Elev. 1,660 feet.	Electra. Elev. 725 feet.	Grizzly Flats. Elev. —— feet.	Summerdale. Elev. 3,270 feet.	Kennedy Mine. Elev. 1,500 feet.
1890–91	**13.06**	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1891–92	17.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43.60
1892–93	26.72	46.15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	44.25
1893–94	25.37	31.32	18.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	**54.07**
1894–95	**32.31**	**53.24**	22.05	(76.49)	14.73	**59.96**	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	37.54
1895–96	23.99	34.97	13.95	77.35	10.27	41.32	18.48	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	53.50	45.97
1896–97	27.33	44.39	15.84	71.10	12.41	45.83	14.77	61.44	.....	.....	.....	.....	.....	*53.38	.....	.....	.....	**29.33**	22.27
1897–98	13.29	20.12	**7.17**	(37.68)	**15.60**	22.78	9.77	**31.37**	.....	.....	.....	.....	.....	.....	18.64	.....	.....	39.77	29.74
1898–99	24.70	27.58	11.55	58.50	**5.33**	34.40	10.54	42.43	.....	.....	.....	.....	.....	.....	21.84	.....	**13.64**	49.56	29.66
1899–00	22.21	35.25	16.01	60.23	5.69	39.57	10.30	48.40	9.25	.....	36.20	.....	.....	.....	31.92	.....	48.47	**65.47**	42.24
1900–01	24.54	Closed	16.80	66.18	13.03	.....	23.32	75.04	**13.63**	.....	58.61	.....	.....	.....	.....	.....	40.49	45.83	37.55
1901–02	17.84	.....	13.35	63.42	7.18	38.02	10.39	48.63	9.81	.....	43.89	.....	.....	.....	.....	.....	53.08	49.83	43.10
1902–03	19.62	.....	15.49	60.06	11.24	.....	**8.69**	55.35	8.36	52.00	*47.37	.....	.....	.....	.....	.....	57.93	49.78	37.86
1903–04	20.33	.....	14.56	**94.80**	7.97	52.65	17.28	55.19	8.32	69.24	67.68	33.07	.....	.....	.....	.....	45.92	49.84	33.25
1904–05	20.33	.....	16.46	58.68	7.61	38.19	12.96	48.73	7.99	52.84	62.70	29.97	34.40	36.00	.....	.....	67.69	84.84	37.12
1905–06	26.59	.....	20.72	93.75	14.37	57.10	25.73	**33.54**	**13.60**	74.50	76.71	47.63	55.46	.....	.....	42.60	50.97	71.77	46.15
1906–07	28.88	.....	**32.03**	94.71	8.77	58.42	Closed	66.51	10.21	**93.13**	**94.80**	48.49	*45.25	55.64	.....	.....	**90.03**	33.72	**13.94**
1907–08	13.72	.....	8.41	45.79	8.37	**23.04**	.....	31.79	8.22	*36.03	37.20	18.95	.....	21.26	.....	19.59	31.62		

*Signifies incomplete record. ( ) enclose interpolated values based on adjacent stations.

FIG. 3.—Relief map of the Hetch Hetchy and Yosemite valleys. By Marsden Manson, C. E.

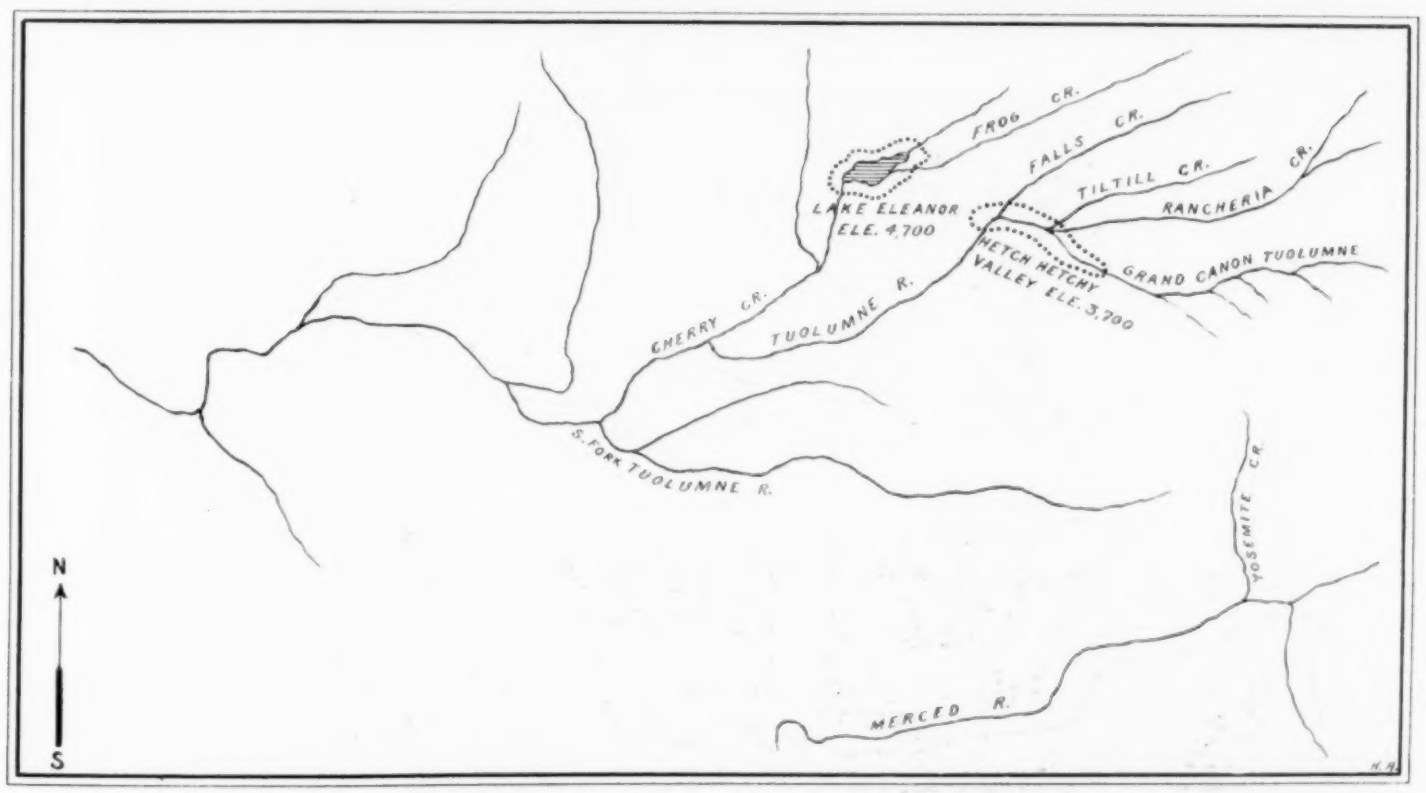


FIG. 4.—Key to relief map of the Hetch Hetchy and Yosemite valleys.

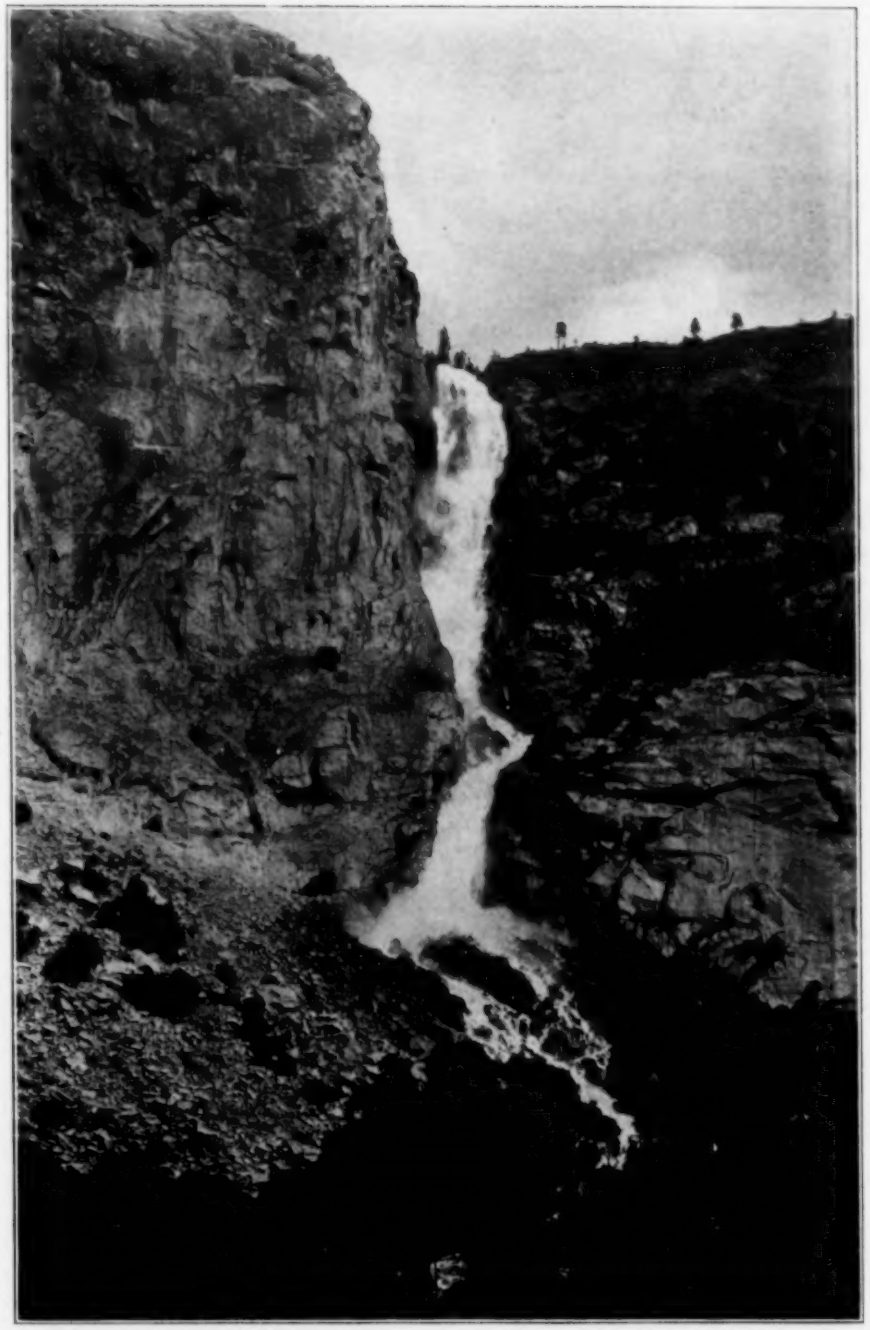


FIG. 5.—"It is the counterpart of the Yosemite Fall, but has a much greater volume of water, is about 1,700 feet in height, and appears to be nearly vertical though considerably inclined, and is dashed into huge outbounding bosses of foam on projecting shelves and knobs of its jagged gorge."—*John Muir.* Photo by Herbert W. Gleason.

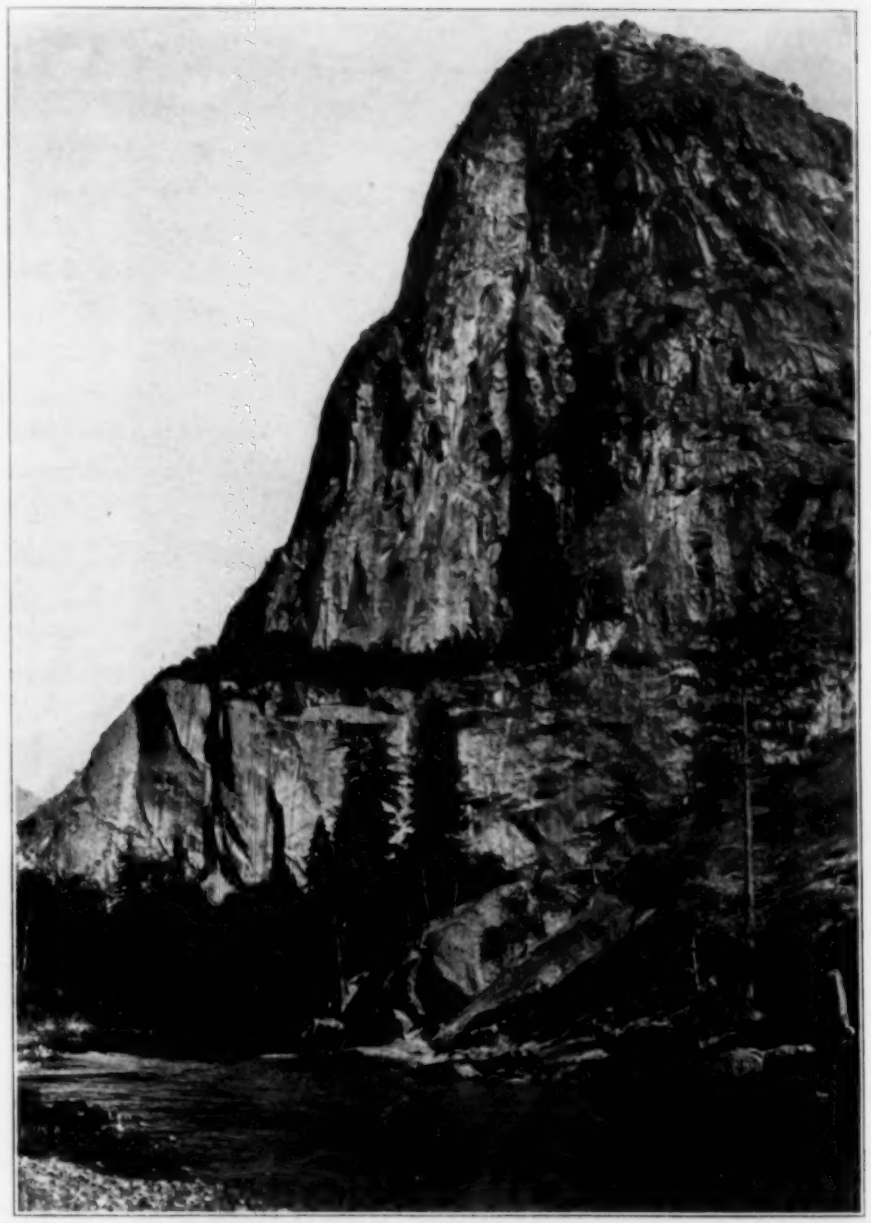


FIG. 6.—"The most strikingly picturesque rock in Hetch Hetchy Valley is a majestic pyramid over 2,000 feet in height, which is called by the Indians 'Kolana.' It is the outermost of a group like the Cathedral Rocks of Yosemite and occupies the same relative position on the south wall."—*John Muir.* Photo by Herbert W. Gleason.

TABLE 1.—*Climatological data for December, 1909. District No. 11, California.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Oregon.																				
Klamath Agency	Klamath		1	23.4		47	1	−10	23	47	2.60		1.30	4.0	3	13	10	8	n.	H. G. Wilson.
Klamath Falls	do	4,250	18	27.0	− 5.8	45	12	1	6	30	1.27	− 0.79	0.38		9	9	8	14	nw.	W. H. Heilman.
Lakeview	Lake	4,825	24	25.8	− 4.4	46	17	4	6	37	1.24	− 1.01	0.33	13.4	8	17	3	11	s.	Walter Dutton.
Long Valley	do										2.11		0.44	19.0	13	13	5	13	w.	Cyrus L. Becraft.
Merrill	Klamath	4,070	4																	Mrs. E. L. Gifford.
Yonna	do	4,146	1	26.5		64	15	1	28†	42	1.02		0.25	2.2	11	7	20	4	s.	Agent, So. Pac. Co.
California.																				
Alturas	Modoc	4,460	5	28.3		51	29	− 3	6	42	1.78		0.95	12.0	10	13	7	11	s.	Prof. C. B. Towle.
Angiola	Tulare	208	9	34.6		60	20	19	10	38	3.48		1.02	2.0	5	7	4	20	nw.	Agent, Santa Fe R. R.
Antioch **	Contra Costa	46	30	47.7	− 0.6	70	17	30	4†	....	4.87	+ 2.33	1.12	0.0	8	13	6	12	.....	Agent, So. Pac. Co.
Aptos **	Santa Cruz	102	24	47.6	− 2.1	54	27	28	4	....	9.00	+ 3.75	2.52	0.0	8	13	2	16	nw.	Do
Auburn	Placer	1,360	38	46.7	− 0.3	65	13†	20	4	30	5.82	− 0.25	1.72	8.0	7	20	2	9	s.	Do
Azusa	Los Angeles	540	7	48.6		72	14	27	19	34	11.70	+10.16	4.40	0.0	10	20	1	10	sw.	A. F. Griffith.
Bagdad	San Bernardino	784	6	50.1		73	2	26	18	36	0.00		0.00	0.0						Agent, Santa Fe R. R.
Bakersfield	Kern	404	20	42.2	0.0	65	1†	30	31	31	1.36	+ 0.56	0.53	0.0	6	17	7	7	.....	Do
Barstow	San Bernardino	2,105	6	41.0		75	3	14	18	48	1.83	+ 1.19	0.43	4.5	7	24	0	7	w.	E. L. White.
Beckwith	Plumas	5,005	1	25.8		52	13	−17	6	46	6.55		1.70	36.5	11	8	*1	22	sw.	F. F. Peck.
Berkeley	Alameda	317	22	47.6	− 1.3	60	7†	34	4	16	7.24	+ 2.45	1.66	0.0	10	13	6	12	se.	State University.
Biggs **	Butte	98	10	49.2	+ 4.8	62	31	30	4†	....	3.83	+ 0.63	1.01	0.0	8	12	3	16	s.	Agent, So. Pac. Co.
Bishop	Inyo	4,450	14																	W. A. Chalfont.
Blocksburg	Humboldt	1,700	3	42.1		67	14	24	4	32	9.63		1.57	9.0	14	8	5	18	se.	Victor Hopa.
Blue Canon	Placer	4,695	10	36.3	− 5.0	63	29	11	6	32	16.80	+ 7.45	4.00	39.0	12	15	3	13	n.	Agent So. Pac. Co.
Blythe	Riverside																			H. V. Blenkiron.
Branscomb	Mendocino	2,000	9	42.4		68	15	22	4†	35	8.11		1.47	3.5	16	16	6	9	n.	A. J. Haun.
Brawley	Imperial	−105	....	49.4		74	2	24	19	35	0.59		0.34	0.0	5	10	8	13	nw.	U. S. Weather Bureau.
Brush Creek	Butte	2,140	5	37.4		58	15	18	6	32	13.83		2.75	23.0	13	6	12	12	n.	Cal. Gas & Electric Co.
Calexico	Imperial	0	4	50.2		72	2	26	19	31	0.30		0.30	0.0	1	9	8	14	nw.	J. E. Peck.
Caliente **	Kern	1,290	33	50.9	+ 1.2	67	2	32	11	....	0.75	− 1.26	0.45	0.0	2					Agent So. Pac. Co.,
Calistoga **	Napa	363	37	43.7	− 5.5	65	1†	25	23†	....	9.22	+ 2.79	3.15	0.0	8	15	0	16	s.	Do
Campbell	Santa Clara	217	12	44.8	− 2.1	67	1	25	4	29	5.08	+ 3.24	2.12	0.0	10	12	4	15	se.	F. M. Righter.
Camptonville (near)	Yuba	3,500	2	41.0		66	28	20	6	30	20.14		3.02	47.5	13	11	1	19	.....	S. B. Johnson.
Cedarville	Modoc	4,675	15	24.1	− 6.1	47	1†	1	22	42	2.09	+ 0.22	1.10	15.5	12	9	22	0	w.	T. H. Johnstone.
Chico	Butte	189	39	44.0	− 3.5	67	16	24	4†	37	6.11	+ 1.89	1.45	3.0	12	11	5	15	n.	Agent, Butte R. R. Co.
Chino **	San Bernardino	714	17	48.6	− 3.6	70	23	27	4	....	7.33	+ 5.15	1.92	0.0	8	17	0	14	e.	Agent, So. Pac. Co.
Cisco **	Placer	5,939	38	30.7	− 2.7	40	1†	8	6	....	14.65	+ 6.15	3.20	48.0	13	17	0	14	.....	Do
Claremont	Los Angeles	1,200	17	48.6	− 3.0	72	14†	28	4	33	8.17	+ 6.02	2.85	0.0	11	13	3	15	e.	F. P. Brackett.
Cloverdale	Sonoma	340	7	46.6		85	17	27	4	45	6.52		1.33	0.0	13	15	5	11	n.	Lloyd Browne.
Colfax	Placer	2,421	38	33.7	−12.9	46	16	16	3	26	11.09	+ 2.41	2.50	15.8	11	14	3	14	n.	Agent, So. Pac. Co.
Colusa	Colusa	60	6	45.6		63	15†	29	4	27	3.05	− 0.05	1.08	0.0	7					W. K. De Jarnatt.
Corning **	Tehama	277	23	44.3	− 3.0	56	15	30	4	....	3.01	− 0.98	1.10	6.0	6	15	0	16	n.	Agent, So. Pac. Co.
Cuyamaca (1)	San Diego	4,677	10	38.4	− 0.3	62	1	21	3†	23	11.76	+ 6.34	2.90	11.0	11	4	13	14	e.	L. L. Macquarie.
Daunt	Tulare	4,000	2	42.6		70	31	18	4	40	14.47		4.60	26.0	8	16	5	10	.....	D. L. Wishon.
Davisville	Yolo	51	37	42.0	− 6.8	60	17	20	4	30	4.76	+ 1.43	1.32	0.0	13	9	6	16	n.	S. H. Beckett.
Deer Creek	Nevada	3,700	2	34.9		59	28	11	6	35	16.88		3.50	38.0	14	11	5	15	.....	Cal. Gas & Electric Co.
Delta	Shasta	1,138	24	43.6	− 0.6	77	25	23	4	44	8.43	− 2.45	2.60	32.0	8	13	1	17	n.	Agent, So. Pac. Co.
Denair	Stanislaus	126	9	45.0		65	1	22	4	31	1.99		0.80	0.0	7	11	1	19	se.	Agent, Santa Fe R. R.
Dobbins	Yuba	1,650	5	45.7		72	15	28	4	34	12.88		2.86	3.5	15	11	9	11	.....	Bishop & Taylor.
Dudleys	Mariposa	3,000	....	37.2		64	29	5	6	39	10.17		3.17	13.0	12	12	4	15	s.	W. H. Dudley.
Dunnigan **	Yolo	65	32	45.0	− 2.3	67	16	28	4	....	7.04	+ 3.21	2.91	0.0	10	15	3	13	n.	Agent, So. Pac. Co.
Dunsmuir **	Siskiyou	2,285	20	34.9	− 4.8	53	17	19	6	....	8.28	− 3.15	2.00	42.5	11	12	0	19	n.	Do.
Durham	Butte	160	14	42.0	− 1.7	67	15	23	23	34	7.08	+ 2.40	1.55	6.0	10	13	5	13	n.	R. W. Durham.
El Cajon	San Diego	482	10	51.3	− 3.3	72	30	27	19	34	4.75	+ 3.47	1.48	0.0	11	18	5	8	sw.	H. H. Kessler.
Electra	Amador	725	5	46.0		58	7†	31	3†	26	8.09		2.20	0.0	12	8	9	14	.....	Cal. Gas & Electric Co.
Elsinore	Riverside	1,234	14	46.6	− 6.0	69	29	19	4	37	6.65	+ 4.73	1.57	0.0	9	15	2	14	n.	W. H. Bohannon.
Emigrant Gap	Placer	5,230	35	29.5	− 7.4	46	1	10	22	25	13.35	+ 4.21	2.00	32.0	12	13	6	12	sw.	Agent, So. Pac. Co.
Escondido	San Diego	657	15	52.5	+ 3.0	76	12	23	19	40	7.71	+ 6.01	2.39	0.0	7	4	17	10	w.	A. R. Moon.
Eureka	Humboldt	64	23	46.3	− 1.7	66	17	32	23	27	4.29	− 2.99	1.20	0.0	15	13	5	13	se.	U. S. Weather Bureau.
Farmington **	San Joaquin	111	30	44.7	− 2.3	61	9	28	4†	....	4.32	+ 1.55	1.15	0.0	9	12	5	14	se.	Agent, So. Pac. Co.
Folsom	Sacramento	252	37	45.4	− 2.2	66	13	28	5†	30	4.46	+ 0.43	1.32	0.0	11	14	4	13	n.	F. O. Hutton.
Fordyce Dam	Nevada	6,500	14	26.1		42	13	0	23	32	16.77	+ 8.59	3.78	76.0	14	14	4	13	sw.	E. E. Roening.
Fouts Springs	Colusa	1,650	5	42.4		64	12†	18	4	33	5.02		1.60	12.0	11					H. S. Green.
Fresno	Fresno	293	22	45.2	− 1.6	62	1	30	3	26	4.50	+ 3.00	1.51	0.0	11	6	6	19	e.	U. S. Weather Bureau.
Fruto **	Glenn	624	20	43.0	− 4.8	65	15	28	4†	....	1.72	− 2.51	0.70	6.0	4	20	1	10	s.	Agent, So. Pac. Co.
Galt **	Sacramento	49	31	42.2	− 6.5	60	31	29	4	....	5.05	+ 1.81	1.40	0.0	10	2	0	29	s.	Do.
Georgetown	El Dorado	2,650	36	41.0	− 7.5	64	16	21	6	28	12.68	+ 3.29	2.73	16.0	13	7	3	21	ne.	C. M. Fitzgerald.
Gilroy **	Santa Clara	193	35	44.0	− 4.0	75	30	24	4	....	6.33	+ 3.12	2.66	0.0	12	1	2	28	sw.	Agent, So. Pac. Co.
Gold Run	Placer	3,222	10	40.6	− 6.5	68	29	22	5	29	6.80	0.00	2.05	12.0	7	14	7	10	se.	Do.
Gonzales **	Monterey	127	10	50.0	+ 2.2	75	11†	22	4	....	4.04	+ 2.57	1.50	0.0	9	10	0	21	s.	Do.
Grass Valley	Nevada	2,690	37	40.3		65	16†	18	6	32	13.84	+ 4.93	2.62	19.5	13	6	10	15	se.	F. R. Hull.
Greenville	Plumas	3,600	15	31.8	− 1.8	54	15†	0	6	40	7.55	+ 1.09	1.80	45.5	13	12	2	17	sw.	C. H. Higbie.
Groveland	Tuolumne	2,828	....	38.4		64	29	19	4	34	13.43		3.40	0.0	10	10	3	18	.....	H. S. Richardson.
Guinda **	Yolo	350	11	42.2	− 3.3	61	14†	27	23†	....	5.80	+ 2.85	2.15	1.5	8	11	9	11	n.	Agent, So. Pac. Co.
Hanford	Kings	249	9	45.4		60	1†	26	4	29	1.95		0.60	0.0	5	17	5	9	.....	Agent Santa Fe R. R.
Healdsburg	Sonoma	110	16	45.2	− 0.8	66	14	26	4	31	7.51	+ 1.13	2.22	0.0	13	13	1	17	n.	C. A. Menefee.
Heber	Imperial	−20	3	49.4		76	2	21	19	36	0.19		0.09	0.0	3	22	5	4	w.	E. F. Chumard.
Helen Mine	Lake	2,750	8								12.22		4.75	12.0	8					A. Rocca.
Hollister	San Benito	284	35	46.8	− 3.3	71	27	21	4	35	5.45	+ 3.47	1.70	0.0	10	13	5	13	n.	J. N. Thompson.
Hornbrook **	Siskiyou	2,154	21	34.3	− 3.2	48	1	15	6	....	3.10	+ 0.16	1.10	16.0	6	19	3	9	n.	Agent, So. Pac. Co.
Hot Springs	Tulare	3,300	2			59m	31	18m	14	34m	8.24		2.47	0.0	9	14	6	11	.....	U. S. Forest Service.
Hullville (near)	Lake	2,250	2	39.0		66	16	16	23	39	6.38		1.07	14.0	13	5	8	18	sw.	S. J. Smith.
Idyllwild	Riverside	5,250	8	38.4d		66d	1	16d	6	31d	8.53		3.26	21.0	10	16	3	12	w.	R. D. Fobes.
Independence	Inyo	3,907	13	26.0	−15.6	67	1	3	6	35	3.90	+ 1.90	1.02	6.0	10	11	12	8	nw.	U. S. Weather Bureau.
Indio	Riverside	−20	31	49.8	− 6.8	75	2	24	4†	37	0.86	+ 0.45	0.48	0.0	4	13	13	5	nw.	F. N. Johnson.
Inskip	Butte	4,975	2	32.4		54	29	12	6	24	13.07		2.75	39.8	9	12	2	17	.....	Cal. Gas & Electric Co.
Ione **	Amador	287	31	43.2	− 5.0	65	1†	24	16	....	4.47	+ 1.20	1.10	0.0	9	10	0	21	s.	Agent, So. Pac. Co.
Iowa Hill	Placer	2,825	28	42.0	− 3.3	68	28	21	6	32	12.25	+ 2.83	3.16	10.5	11	13	2	16	sw.	C. F. Macy.
Jamestown	Tuolumne	1,471	6	41.8		60	29	25	4	29	8.45		2.30	0.0	11	13	5	13	.....	Agent, Sierra R. R.
King City	Monterey	333	22	46.2	− 2.8	68	2†	14	4	46	3.15	+ 0.96	1.40	0.0	7	23	0	8	.....	Agent, So. Pac. Co.
La Porte	Plumas	5,000	15	33.5	− 0.6	61	29	10	23	41	20.14	+ 9.66	3.13	52.5	15	14	1	16	n.	C. W. Hendel.
Le Grand	Merced	255	9	43.8		58	1	27	4	25	4.99		1.55	0.0	8	12	0	19	w.	Agent, Santa Fe R. R.
Lemon Cove	Tulare	600	14	46.6	+ 0.2	71	3	28	15	42	3.68	+ 2.04	1.00	0.0	6	7	7	17	nw.	G. W. Sandidge.
Lick Observatory	Santa Clara	4,209	20	38.0	− 4.0	52	16†	22	3	21	6.87	− 0.31	2.19	19.5	13	14	0	17	se.	The Director.
Livermore	Alameda	485	38	45.4	− 5.1	63	16†	25	4†	32	5.77	+ 2.66	1.62	0.0	15	14	2	15	ne.	E. G. Still.
Lodi	San Joaquin	45	27	43.6	− 3.7	57	7†	24	4	28	5.34	+ 1.78	1.43	0.0	13	8	9	14	se.	Ezra Fiske.
Lone Pine	Inyo	2,728	4	34.1		66	1	2	27	38	2.92		1.20	26.0	8	17	12	2	n.	G. F. Marsh.
Long Valley	Lassen																			A. G. Evans.
Los Angeles	Los Angeles	293	32	53.8	− 1.5	74	30	37	4	25	7.00	+ 3.02	3.03	0.0	10	12	7	12	ne.	U. S. Weather Bureau.

TABLE 1.—*Climatological data for December, 1909. District No. 11*—Continued

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
California—Cont'd.																				
Los Banos **	Merced	121	22	40.8	+ 0.9	90	4†	30	4†	....	3.29	+ 1.96	0.95	0.0	7	8	5	18	sw.	Agent, So. Pac. Co.
Los Gatos	Santa Clara	600	22	47.4	− 1.4	64	15†	31	4	27	8.63	+ 2.16	2.80	0.0	12	14	1	16	n.	F. H. McCullagh.
Macdoel	Siskiyou	4,258	2	27.2	.....	48	30	− 4	21†	25	.....	.....	.....	.....	...	12	8	11	s.	Robert Miller.
Madeline	Lassen	5,270	....	24.9	.....	45	2	− 5	6	40	2.08	.....	0.65	10.5	9	13	2	16	nw.	J. H. Williams.
Magalia	Butte	2,321	5	41.8	.....	64	27	18	6	39	18.50	.....	4.86	31.0	11	14	0	17	s.	Agent, Butte Co. R. R.
Mammoth Tank	Imperial	257	31	51.8	− 3.6	71	2	31	19	29	0.68	+ 0.28	0.25	0.0	6	12	7	12	e.	Agent, So. Pac. Co.
Marysville	Yuba	67	38	51.6	+ 1.7	82	9	27	16	35	4.99	+ 1.53	1.25	0.0	8	9	0	22	n.	Do.
Mecca	Riverside	−185	3	50.6	.....	74	16	21	19	36	0.85	.....	0.73	0.0	4	17	8	6	nw.	A. Lunsted.
Menlo Park**	San Mateo	64	31	47.6	− 1.4	62	1	30	4	....	5.65	+ 2.30	1.75	0.0	8	11	0	20	s.	Agent, So. Pac. Co.
Merced	Merced	173	35	50.5	+ 2.2	68	8†	32	2†	34	2.92	+ 1.22	1.00	0.0	9	10	0	21	nw.	Agent, Santa Fe R. R.
Mill Creek (1)	Amador	.....	2	39.2	.....	62	15	21	6	30	12.95	.....	3.18	8.2	12	13	3	15	s.	Cal. Gas & Electric Co.
Milton (near)	Calaveras	660	19	44.4	− 2.5	58	17	28	2	22	5.55	+ 1.84	2.17	1.0	9	8	8	15	se.	J. H. Southwick.
Modesto **	Stanislaus	90	37	45.7	− 2.4	61	1	25	4	....	3.35	+ 1.50	0.85	0.0	8	16	10	5	.....	Agent, So. Pac. Co.
Mojave	Kern	2,751	32	45.1	− 1.7	72	13	20	3†	38	2.10	+ 0.84	1.00	16.0	5	19	0	12	.....	Do.
Mokelumne Hill	Calaveras	1,550	16	43.3	− 0.2	62	29	27	3	25	8.89	+ 3.42	2.79	0.0	9	12	2	17	.....	C. E. Prindle.
Mono Ranch	Ventura	3,210	5	38.7	.....	63	1	14	4	29	11.74	.....	4.64	12.0	8	17	6	8	nw.	H. Lathrop.
Montague	Siskiyou	2,450	21	32.4	− 5.7	55	17	12	24	36	1.21	− 0.50	0.60	T.	6	14	4	13	n.	G. H. Chambers.
Monterey **	Monterey	13	44	47.4	− 4.3	68	1	28	4	....	5.42	+ 2.64	1.60	0.0	7	13	12	6	se.	Agent, So. Pac. Co.
Monterio	Kern	4,500	10	41.8	− 9.9	60	1	22	23	24	3.75	+ 1.73	1.00	0.0	7	9	5	17	s.	John C. Knecht.
Monumental	Del Norte	.....	4	35.5	.....	63	15	20	5	32	11.29	.....	1.85	22.0	11	16	1	14	.....	G. F. Morgan.
Mount Tamalpais	Marin	2,375	10	41.8	− 5.8	57	29	29	3	19	7.30	+ 4.39	1.87	T.	14	8	5	18	ne.	U. S. Weather Bureau.
Napa (1) §	Napa	20	32	44.7	− 1.8	63	14†	25	4	29	8.03	+ 3.84	2.46	0.0	14	11	6	14	s.	Thomas Hull.
Napa (2)	....do.	60	31	45.0	− 1.5	65	15	29	4	27	6.64	+ 2.40	2.34	0.0	12	12	5	14	n.	W. H. Martin. (S. H.)
Needles	San Bernardino	477	17	51.6	− 1.2	86	18	25	4	54	1.20	+ 0.72	0.53	0.0	6	17	1	13	w.	Agent, Santa Fe R. R.
Nevada City	Nevada	2,580	17	38.6	− 3.3	69	28	14	6	45	11.04	− 0.07	2.22	18.0	14	10	1	20	se.	S. W. Marsh.
Newcastle	Placer	970	16	52.9	+ 5.5	89	16	29	2†	58	6.07	+ 1.84	2.15	0.0	13	8	9	14	nw.	George D. Kellogg.
Newhall **	Los Angeles	1,200	32	45.0	− 4.5	70	12†	20	4	....	12.26	+ 8.86	4.46	T.	9	21	0	10	se.	Agent, So. Pac. Co.
Newman	Stanislaus	91	20	46.0[c]	− 3.4	67[c]	1	29[c]	14†	27[c]	3.69	+ 1.60	0.92	0.0	8	19	0	12	n.	E. S. Wangenheim.
Nimshew	Butte	2,500	5	39.4[b]	.....	64[b]	28	19[b]	23	34[b]	14.57	.....	2.98	26.5	13	17	0	14	.....	Cal. Gas & Electric Co
North Bloomfield	Nevada	3,200	12	41.0	− 4.0	64	1†	8	25	38	10.47	+ 0.65	2.00	23.0	12	15	3	13	.....	W. G. Shand.
North Fork	Madera	3,000	5	38.8	.....	58	15	18	6	31	13.36	.....	4.35	9.0	11	6	14	11	sw.	C. H. Shinn.
Oakdale **	Stanislaus	156	15	44.0	− 0.9	56	7†	26	4	....	3.36	+ 1.13	0.97	0.0	9	8	8	15	se.	Agent, So. Pac. Co.
Oakland	Alameda	36	33	47.9	− 1.3	62	15†	33	4	21	6.22	+ 1.97	1.48	0.0	13	10	7	14	w.	Chabot Observatory.
Ojai Valley	Ventura	900	3	50.4	.....	76	16†	23	4	39	12.28	.....	4.87	0.0	6	17	8	6	w.	W. H. Duncan.
Orland	Glenn	254	27	43.6	− 4.3	65	16	26	3	31	3.13	+ 0.03	1.00	5.0	6	15	6	10	n.	W. W. Patch.
Orleans	Humboldt	520	6	43.8	.....	69	14	26	21	38	6.91	.....	1.28	6.0	12	12	3	16	.....	Fred T. Hale.
Oroville (near)	Butte	250	25	44.4	− 4.4	68	15	28	6†	35	6.97	+ 2.18	2.06	4.0	8	8	1	22	s.	E. D. Fairchild.
Palermo	....do.	213	18	43.2	− 2.0	72	15	25	4	35	4.47	+ 1.05	1.50	0.0	7	11	11	9	s.	Miss Hettie Boalt.
Palm Springs **	Riverside	584	20	48.6	− 6.5	70	1	32	4	....	1.85	+ 0.65	1.00	T.	4	14	10	7	w.	Agent, So. Pac. Co.
Pasadena	Los Angeles	827	19	50.6	− 3.4	73	14†	30	4†	36	8.66	+ 6.02	3.28	0.0	10	18	3	10	sw.	E. R. Sorver.
Paso Robles **	San Luis Obispo	800	22	45.6	0.0	67	28	15	4	43	6.30	+ 3.31	2.80	0.0	9	15	5	11	nw.	Dr. F. W. Sawyer.
Peachland	Sonoma	190	13	45.0[b]	− 2.3	67[b]	15†	24[b]	4	35[b]	10.60	+ 5.50	2.98	0.0	15	13	7	11	s.	E. H. Parnell.
Penstock Camp	Tuolumne	3,750	2	39.3	.....	60	15	22	3	22	12.57	.....	3.15	19.0	11	6	12	13	se.	Tuolumne W. P. Co.
Pine Crest	Santa Barbara	1,000	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	.....	.....	.....	Dr. C. M. Richter.
Placerville	El Dorado	1,875	20	40.3	− 1.7	58	31	23	4	26	8.32	+ 0.49	1.84	3.0	11	11	0	20	sw.	A. Baring-Gould.
Point Lobos	San Francisco	250	16	49.4	.....	62	15	40	4†	14	4.71	+ 1.78	0.96	0.0	13	10	7	14	ne.	John Hyslop.
Point Reyes	Marin	490	17	49.6	− 1.0	68	17	40	3	21	3.50	− 0.24	1.09	0.0	13	10	7	14	nw.	U. S. Weather Bureau.
Porterville	Tulare	464	20	45.6	− 2.9	65	8†	27	4	29	2.78	+ 1.16	0.79	0.0	9	8	11	12	.....	Harry E. Cowie.
Poway	San Diego	460	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	.....	.....	.....	Adams Chapin.
Quincy	Plumas	3,400	14	29.6	− 4.9	54	1	8	8†	28	8.50	+ 2.61	1.85	25.0	12	14	3	14	sw.	L. A. Barrett.
Red Bluff	Tehama	307	32	44.0	− 2.4	64	16	29	4	30	4.35	− 0.96	1.16	15.0	10	12	2	17	nw.	U. S. Weather Bureau.
Redding	Shasta	552	34	45.4	− 1.6	66	28	26	6	31	6.55	− 0.19	1.05	23.0	12	16	3	12	n.	L. F. Bassett.
Redlands	San Bernardino	1,352	16	47.6	− 5.6	70	12	26	4	35	4.43	+ 2.37	1.10	0.0	11	12	9	10	n.	Paul W. Moore.
Reedley	Fresno	347	9	45.1	.....	64	8	27	16	30	5.66	.....	2.25	0.0	6	15	1	15	n.	Agent, Santa Fe R. R.
Rialto (near)	San Bernardino	2,250	3	47.0	.....	66	13	34	5†	20	21.32	.....	6.70	2.0	11	14	2	15	n.	Edison Electric Co.
Riverside	Riverside	851	27	49.5	− 3.9	70	12†	25	4	34	5.03	+ 3.29	1.47	0.0	11	17	4	10	n.	C. W. Barton.
Rocklin	Placer	249	38	44.6	− 3.3	73	8	25	6	38	5.60	+ 1.83	1.84	0.0	11	16	4	11	ne.	Agent, So. Pac. Co.
Rohnerville	Humboldt	75	6	45.9	.....	66	17	29	23	34	5.24	.....	1.11	0.0	12	12	7	12	n.	Dr. R. Callihan.
Sacramento (1)	Sacramento	71	32	44.0	− 2.3	60	17	29	4	26	3.87	− 0.27	1.33	T.	13	8	8	15	se.	U. S. Weather Bureau.
Sacramento (2)	....do.	35	56	44.1	− 2.9	58	17	28	4	28	4.71	+ 0.59	1.08	T.	12	13	5	13	n.	S. H. Gerrish.
St. Helena	Napa	255	1	44.2	.....	70	13	23	4	37	8.22	.....	3.01	0.0	10	16	0	15	n.	B. F. Kettlewell.
Salinas	Monterey	40	35	48.8	− 1.3	67	29	27	4	28	4.90	+ 2.55	1.65	0.0	8	17	7	7	w.	Miss E. Ruth Abbott.
San Bernardino	San Bernardino	1,054	17	48.4	− 3.6	73	12	22	4	42	7.19	+ 4.30	2.90	0.0	11	11	9	11	n.	Dr. A. K. Johnson.
San Diego	San Diego	93	38	53.8	− 1.9	71	30	36	19	22	3.76	+ 1.63	1.68	0.0	9	14	8	9	ne.	U. S. Weather Bureau.
San Francisco	San Francisco	207	38	49.2	− 1.7	63	15	38	4	17	5.59	+ 0.56	1.41	0.0	14	11	4	16	nw.	Do.
San Jacinto	Riverside	1,550	16	48.2	− 1.8	73	13	20	19	40	4.89	+ 3.25	1.42	0.0	9	13	6	12	w.	E. T. Tanner.
San Jose	Santa Clara	95	34	45.8	− 4.1	66	5	26	4	33	5.37	+ 2.72	2.40	0.0	14	9	6	16	se.	U. S. Weather Bureau.
San Leandro	Alameda	48	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	.....	.....	.....	Dr. J. E. Childs.
San Luis Obispo	San Luis Obispo	201	14	51.0	− 1.8	72	15	29	19	30	10.09	+ 5.59	3.95	0.0	13	9	6	16	n.	U. S. Weather Bureau.
San Mateo**	San Mateo	22	35	49.9	+ 0.3	64	1†	34	4	....	5.61	+ 1.93	2.30	0.0	9	9	6	16	e.	Agent, So. Pac. Co.
San Miguel**	San Luis Obispo	616	22	47.3	− 0.3	64	1†	22	4	....	4.30	+ 2.06	1.95	0.0	8	10	11	10	.....	Do.
Sanger**	Fresno	371	20	50.1	+ 2.5	58	8	42	23†	....	1.25	− 0.58	0.90	0.0	6	10	0	21	.....	Do.
Santa Barbara	Santa Barbara	130	25	51.8	− 3.9	73	29	33	4	31	9.53	+ 6.30	2.44	0.0	9	16	5	10	sw.	George W. Russell.
Santa Clara	Santa Clara	90	20	46.4	− 3.0	69	15	26	4	38	5.28	+ 2.08	1.98	0.0	13	12	3	16	se.	Santa Clara College.
Santa Cruz	Santa Cruz	20	36	48.2	− 4.2	73	29	26	4	39	11.39	+ 6.10	2.80	0.0	9	15	2	14	n.	W. R. Springer.
Santa Margarita**	San Louis Obispo	996	20	50.6	+ 5.6	70	30	28	4†	....	13.12	+ 7.96	7.70	0.0	9	20	0	11	w.	Agent, So. Pac. Co.
Santa Maria	Santa Barbara	220	21	51.4	− 2.3	67	16	31	4	29	5.89	+ 3.43	1.50	0.0	8	.....	.....	.....	.....	L. E. Blochman.
Santa Monica	Los Angeles	110	24	51.3	+ 5.7	72	30	35	19	30	6.70	+ 4.54	1.63	0.0	8	13	7	11	w.	N. D. Ingham.
Santa Rosa	Sonoma	181	20	45.4	− 3.5	66	14†	24	4	35	7.61	+ 1.55	2.04	0.0	12	9	7	15	sw.	M. L. McDonald, jr.
Selma**	Fresno	311	23	45.1	− 0.9	59	10	29	3	....	3.09	+ 1.67	0.72	0.0	7	6	7	18	nw.	Agent, So. Pac. Co.
Shasta	Shasta	1,049	13	42.4	− 5.3	72	23	22	3†	48	6.62	− 0.88	2.18	26.8	9	15	0	16	nw.	Dr. T. J. Edgecomb.
Sierra Madre	Los Angeles	1,400	12	50.1	− 6.4	67	30	33	4	23	11.07	+ 9.15	4.65	0.0	10	15	1	15	se.	Miss A. E. Carter.
Sisson	Siskiyou	3,555	20	29.7	− 4.8	51	1	8	5	28	6.19	− 1.09	1.90	37.0	10	15	3	13	n.	Agent, So. Pac. Co.
Soledad**	Monterey	188	35	46.7	− 2.6	81	4	22	15†	....	4.10	+ 2.60	1.35	0.0	7	10	11	10	s.	Do.
Sonora	Tuolumne	1,825	21	42.5	.....	61	18	25	4	32	8.59	+ 2.93	2.44	0.5	11	11	7	13	sw.	Charles P. Jones.
Southeast Farallon	San Francisco	30	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	.....	.....	.....	U. S. Weather Bureau.
Stirling City	Butte	3,525	5	38.8	.....	62	31	12	6	28	14.05	.....	3.55	28.0	10	15	10	6	se.	Agent, Butte Co. R. R.
Stockton (1)	San Joaquin	23	38	42.6	− 4.5	57	1	26	4	21	4.82	+ 1.46	1.45	0.0	11	2	6	23	se.	State Hospital.
Storey	Madera	296	9	40.0	.....	58	1†	22	17	31	5.00	.....	2.00	0.0	5	10	0	21	e.	Agent, Santa Fe R. R.
Suisun**	Solano	20	29	45.8	− 2.8	60	15†	28	4	....	4.61	+ 0.72	2.00	0.0	9	18	10	3	se.	Agent, So. Pac. Co.
Summerdale	Mariposa	5,270	13	37.0	− 2.5	63	29	13	6	30	19.92	+14.50	7.52	30.0	11	9	2	20	se.	J. H. Lowry.
Summit	Placer	7,017	36	25.4	− 5.1	49	2	10	6	25	8.30	+ 0.42	2.70	83.0	10	8	0	23	.....	Agent, So. Pac. Co.
Susanville	Lassen	4,175	20	28.0	− 4.4	51	1	4	6	25	2.38	− 0.50	0.49	26.0	11	6	6	19	sw.	J. Branham.
Tamarack	Alpine	8,000	3	16.0	.....	58	8	−24	4	51	10.34	.....	2.04	92.0	16	10	2	19	n.	William Bennett.
Tehachapi**	Kern	3,964	32	36.3	− 3.2	55	29	25	4	....	2.93	+ 0.97	1.00	12.0	7	.....	.....	.....	.....	Agent, So. Pac. Co.
Tehama**	Tehama	220	38	47.0	− 1.6	61	6†	30	13	....	4.52	+ 0.96	2.09	3.0	5	13	8	10	n.	Do.
Towle	Placer	3,704	23	36.8	− 5.5	64	28	14	6	36	10.91	+ 3.27	2.15	15.0	8	12	0	19	s.	Do.

TABLE 1.—*Climatological data for December, 1909. District No. 11*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
California—Cont'd.																				
Tracy**	San Joaquin	64	29	43.1	− 6.5	54	27	22	3	....	3.27	+ 1.11	1.01	0.0	10	8	4	19	nw.	Agent, So. Pac. Co.
Tulare (near)	Tulare	274	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. T. Bearss.
Ukiah	Mendocino	620	16	42.8	− 1.9	63	14†	24	4	35	5.81	− 0.96	1.17	3.0	13	11	11	9	nw.	Dr. George McCowen.
Upland	San Bernardino	1,750	12	47.1	− 6.3	70	15	26	4	31	11.41	+ 9.90	4.30	0.0	10	14	6	11	w.	A. P. Harwood.
Upper Lake	Lake	1,350	24	42.9	− 2.7	68	15	24	22	35	4.65	− 0.93	1.18	2.0	11	19	0	12	se.	C. M. Hammond.
Vacaville	Solano	175	21	45.7	− 1.9	64	15†	25	4	29	9.45	+ 3.57	3.87	0.0	12	14	6	11	n.	G. O. Coburn.
Valley Springs**	Calaveras	673	20	47.2	− 0.5	59	1	31	3	....	5.25	+ 0.98	1.50	0.0	10	7	10	14	s.	Agent, So. Pac. Co.
Visalia	Tulare	334	21	49.0	.....	65	25†	35	29	27	2.79	.....	0.73	0.0	10	14	3	14	.....	Agent, Santa Fe R. R.
Warner Springs	San Diego	3,165	1	45.6	.....	78	13	22	3†	45	7.93	.....	2.28	2.5	9	.....	.....	.....	.....	Mrs. F. S. Sanford.
Wasco	Kern	336	9	45.9	.....	69	5	26	24†	27	0.75	.....	0.75	0.0	1	12	1	18	.....	Agent, Santa Fe R. R.
Watsonville	Santa Cruz	23	13	48.8	− 2.5	72	3	24	4	42	10.41	+ 6.32	2.30	0.0	10	8	13	10	nw.	Spreckels Sugar Co.
Westley**	Stanislaus	90	30	46.5[d]	− 2.8	61[d]	9	30[d]	24	....	3.21	+ 1.12	0.96	0.0	5	13	0	18	.....	Agent, So. Pac. Co.
Wheatland	Yuba	84	22	43.0	− 2.1	61	17	27	4	30	5.99	+ 2.31	1.16	0.0	12	12	9	10	n.	Wm. Lumbard.
Willows	Glenn	136	30	43.2	− 4.0	66	16	24	4	27	3.05	− 0.21	0.67	4.5	12	12	5	14	n.	M. T. Harrington, jr.
Yosemite	Mariposa	3,945	5	30.4	.....	50	15	9	6	30	13.12	.....	4.06	22.5	10	10	6	15	n.	C. W. Tucker.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Separate dates of fall not recorded.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for December, 1909. District No. 11, California.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oregon.																																	
Klamath Agency	Klamath										.90		1.30														.40						2.60
Klamath Falls	do		T.		T.	T.	T.	.38	.07	.13	.02	.13	.05	.02										T.	T.					.15	.30	1.27
Lakeview	Pitt				.06	.06	.04	.33	.33														.02			T.	.10				.30		1.24
Long Valley	Pitt		T.		.16	.07	.19	.21	.24	.02	.15	.16									T.		.07			.09					.24	.44	2.11
Merrill	Interior																																
Yonna	Interior		.02		.10	.03	.21		.25	.05		.09	.04													.06					.10	.07	1.02
California.																																	
Aguanga	Coast					.20	.17			1.03	.15										.77	.79									1.05	4.16
Alturas	Sacramento	.95	T.			.08	.02	.03	.02	.32	T.	.10									.04		T.								.02	.20	1.78
Anderson	do	.23			.35	.79	.38	1.05	.64	.88		.02	T.													.27	.14				.19	.19	5.13
Angels Camp	San Joaquin	1.02				1.75			2.25			.25							.70											.66	2.00	8.63
Angiola	do																															‡	3.48
Antioch	do	.35				1.12	.52		.83												.40					.40					.20	1.05	4.87
Aptos	Coast		.30		1.41		1.86			2.52	.20										.28							.06			2.31	9.00
Arrowhead Springs	do					.90			.01	2.01	.30										.70	.09	.80								3.85	8.66
Auburn	Sacramento	1.00	1.72			.80		.40	.20													.20								T.	1.50	5.82
Azusa	Coast					.71		.05	2.00	2.23										.03	1.70	.13	.37							.08	4.40	11.70
Bagdad	Desert																																0.00
Bakersfield	San Joaquin		.05					.13	.20	.32												.13									.53	1.36
Barstow	Desert					.38			.06	.33											.05	.43		.30							.28	1.83
Bear River	San Joaquin																																
Bear Valley (1)	Sacramento	1.75			1.40	.30	1.05	1.50	2.45	.55										.15		.35				.15				4.10	2.10	15.85
Bear Valley (2)	San Joaquin		1.02				.30		1.05													.45		.48								3.30
Beckwith	Sacramento	.58	.12	.01		.81		.30	.18	1.46	.25										T.	T.				.18					.98	1.70	6.55
Ben Lomond	Coast	.33			3.67		2.87	.05	3.76	.18									T.						27	.18					1.50	1.34	14.15
Berkeley	do	.52				1.66		1.29	.67	1.18									T.	.12	.01					.05					.14	1.60	7.24
Big Bar	Sacramento																																
Biggs	do	.30	.05			.90	1.01		.62	.80																					.10	.05	3.83
Bishop	Owens																																
Blocksburg	Coast	.84	.10			.80	1.08	1.57	1.47	1.30	.08	.03								.15	T.	T.	T.		.45	.44					.32	1.00	9.63
Blue Canon	Sacramento	2.30	3.00			1.80	.30	.70	1.00	2.60	.60										.10		.30	.10							T.	4.00	16.80
Blythe	Colorado																																
Boulder Creek	Coast	.14	.28			4.03		1.85	.05	3.96	.12																.40	.07			.11	1.42	12.43
Bowmans Dam	Sacramento	2.10	1.72			1.95		1.04	1.44	2.17	.60										.15	.40	.10	.25			.60			1.60	.80	.70	15.62
Branscomb	Coast	.73			.30	1.10	.20	1.47	1.03	1.38			.07	.02						.04	.08	.07				.33	.07				.68	.54	8.11
Brawley	Desert								T.	.11											.20	.14	.01								T.	.13	0.59
Brush Creek	Sacramento	1.51	.08		T.	2.00	.10	1.80	2.75	2.03	.06	T.									.05		.35			.13					1.07	1.90	13.83
Butte Valley	do	.50			.20	.40		1.01			.05										.08		.13	.05		.08				1.00		1.60	5.08
Calexico	Desert								T.						T.					T.	T.											.30	0.30
Caliente	San Joaquin						.30		.45																								0.75
Calistoga	Coast	.50	.52			2.40		.80	.90	3.15																		.05				.90	9.22
Campbell	do	.05			1.52		.26	T.	.56	.02										.25		T.				.25	.01				.04	2.12	5.08
Campo	do		.11		.11	.72				1.24	.33										1.52	1.00	.14	.20							.45	5.82
Camptonville (near)	Sacramento	2.12	.30			3.00		2.69	3.02	2.75	.25										.10	.04	.70			.13					2.14	2.90	20.14
Cedarville	Mountain Lakes	1.10	T.		.08	.07	.06	.06		.16		.09	.07							T.	.03	.03	.04				T.				.30	2.09
Chico	Sacramento	.72			.08	1.25	.19	1.45	.99	.82											.06					.05	.08				.34	.08	6.11
Chico (near)	do	.38				1.40		2.00	1.77												.05					.12					.35	.45	6.52
China Flat	Coast	.30			.63	.27	1.03	.67	.85	.93			.24							T.					.30	.68					.24	.97	7.11
Chino	do						.75		.16	1.92	.51										.30	1.41	1.10								1.20	7.33
Cisco	Sacramento	1.70	2.10			2.00		.80	.40	3.05	.60										.30		.10				.10	.10			.20	3.20	14.65
Claremont	Coast			.04		.02	.60		.10	1.84	.63										.07	1.45		.57							2.85	8.17
Clear Lake	Klamath																																
Cloverdale	Coast	.76			.38	1.33	.57	.75	1.32	.46	.07									T.	.02					.20	.13				.35	.18	6.52
Colfax	Sacramento	1.03	1.50			1.50		1.00	.60	2.30	.24										.02		30								.10	2.50	11.09
Colgate	do	1.58	1.86			1.32	.20	.70	1.26	1.88	.13										.04	.14	.30	.04			.11				.22	2.14	11.92
Colusa	do					.79	.06	1.06	.32	.39											.17					.26							3.05
Corning	do					1.10	.20	.26	1.05																	.10					.30		3.01
Corona	Coast					.73		.10	.25	1.87											.82	.50	.47	.54								2.10	7.38
Crescent City	do																																
Crockers	San Joaquin																																
Cuyamaca (1)	Coast		.12			.77		.15	2.08	1.57										.72	2.73	.18	.29	.27							2.90	11.76
Cuyamaca (2)	do																																
Daunt	San Joaquin	1.91	.20		1.20		3.35		4.60	.15									T.		1.20										1.86	14.47
Davisville	Sacramento	.12			1.32		.12	.56	.38	1.19										.04	.30	.01				.05	.01				.03	.63	4.76
Deer Creek	do	3.05	.25			1.83	.12	2.12	.96	3.02	.30										.10	.06	.25			.09		T.			1.23	3.50	16.88
Delta	do	.04			1.40		1.60	.20	2.60	1.33																.64					.62		8.43
Denair	San Joaquin					.40	.15	T.	.32	T.	.02										.23	.07	T.									.80	1.99
Descanso	Coast						.88		1.94			1.10									.90		1.85		.51							.61	7.79
Dinuba	San Joaquin	.20				.62	.72		.95	.24											.63										.35	.85	4.56
Dobbins	Sacramento	2.86	.18			1.42	.04	1.52	1.25	1.24	.09										.15	.07	.30			.10	.01				1.38	2.27	12.88
Downieville	do	1.51	.21			1.72		1.85	1.08	3.19	.41										.13		.30			.40					1.59	2.75	15.14
Dudleys	San Joaquin	1.23	.48			.75		.88	.53	2.51	.03									T.	.24	.10	.01								.24	3.17	10.17
Dunnigan	Sacramento	.11	.07			1.50	1.15	.36	2.91													.16						.46			.06	.26	7.04
Dunsmuir	do					2.00	.10	1.20	.83	2.00	.05		.10													.50	.20				.10	1.20	8.28
Durham	do					1.18	1.13	1.48	1.55	.32											.08	T.				.15					.46	.73	7.08
Dyerville	Coast	.30			2.00	.71	.54	1.30	1.30	1.02	.01			.01		.01									60	1.44					.35	.62	10.21
Edgewood	Klamath	.20			.80				.19	.58																.10					.19	2.06
Edison	San Joaquin					.05		.21	.53	.56											.44										.62	2.41
El Cajon	Coast		T.			.50	.28		.01	1.48	.38										.58	.75	.20	.21	.03						.33	4.75
Electra	San Joaquin	1.25	.20			1.22		.51	.14	1.83	.02										.31	.05	.02								.34	2.20	8.09
Elsinore	Coast		T.				.91		.06	.11	1.57										.16	1.35		.88							.41	1.20	6.65
Emigrant Gap	Sacramento	1.60	2.00	2.00	2.00	.20			1.00		.40										.20		.30	.10							.15	3.40	13.35
Escondido	Coast					1.39				2.39											2.00	.62	.32	.24							.75	7.71
Eureka	do	.22			.70	.17	.02	.33	.93	.31	.02	T.	.14							.02	.01				.08	.14					1.11	.09	4.29
Fairmont	do					.24			T.	1.70											1.25	.12	.10								2.05	5.46
Farmington	San Joaquin		.20			.81		.45		1.15	.11										.47	.39	.04								.70	4.32
Felton	Coast		.25		3.10			2.33	.05	3.28	.32										.15						.25				.10	1.54	11.37
Firebaugh	San Joaquin					.24		.69		.80											.27	.23		.06							.18	2.47
Folsom	Sacramento	.60	.26			1.32		.38	.04	1.22	.10										.12	.12									.12	.18	4.46
Fordyce Dam	do	3.78	.82		T.	1.04	.17	1.35	.90	3.25	.23									T.	.12	.08	.15			.13					1.50	3.25	16.77
Fort Bragg	Coast				1.78		.23	.55	.78																20	.65					.80	.24	5.23
Fort Ross	do	1.40			.93	1.91	.40	1.21	2.90	.61	.07									.05						.21	.03	.06			.30	.28	10.36
Fouts Springs	Sacramento																																15.02
Fresno	San Joaquin	.17	.05			.50	.41	.40	.73	.23											.44	.05	T.								.01	1.51	4.50
Fruto	Sacramento					.30		.30		.70																	.42						1.72
Galt	San Joaquin		.28		1.25			.35		1.40	.20										.25	.22	.10			.30						.70	5.05
Georgetown	do	1.75	2.62			1.26	.10	.50	.28	2.73	.53										.13		.17			.03					.03	2.56	12.68
Gilroy	Coast		.20			1.16		.75	.04	2.66	.03										.17	.06	.06					.03			.02	1.15	6.33
Glendora	do																																
Glen Ranch	do							.50	.30	3.32	.86										.13	2.03		.70							3.89	11.75
Glenwood	do	.22			4.00		1.78	.11	2.64	.15										.13	T.				T.	.25	.05				1.50	.95	11.78
Gold Run	Sacramento					1.00	.60	.80	2.00	T.													.20								.15	2.05	6.80
Gonsales	Coast		.17			.61		.60		1.50	.09										.31	.19	.05								.52		4.04
Grass Valley	Sacramento	2.53	.44			1.76		1.39	1.12	2.25	.23										.17	.04	.28			.06					.95	2.62	13.84

TABLE 2.—*Daily precipitation for December, 1909. District No. 11*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
California—Cont'd.																																	
Greenville	Sacramento	.44	.06			.98	T.	.71	.79	1.80	.04												.40	.10		T.	.14				.90	1.19	7.55
Gridley	do	.22	.01		T.	1.18		1.27	.41	1.12	.02										.07		.02			.04	.11	.01			.56	.16	5.20
Groveland	San Joaquin	1.15	.58			1.80		.35	2.75											3.40	.22	.05									.34	2.79	13.43
Guinda	Sacramento		.09			1.50		.81	.35	2.15																.09							5.80
Hanford	San Joaquin																																‡1.95
Head Dam	Sacramento	4.00	.34			1.92	.05	2.00	2.00	2.00											.11			1.00	.50					1.00	1.50	16.42
Healdsburg	Coast	.38	.25			2.22	.24	1.04	2.06	.14	.08															.35	.02	.03			.50	.20	7.51
Heber	Desert									.08											T.	.09	.02								T.	0.19
Helen Mine	Coast																														‡	12.22
Hollister	do		.09			1.06		.59		1.70	.19										.35	.04	.10	.01							1.32	5.45
Hornbrook	Klamath				1.10	.10	.40	.50	.25	T.																			.75	T.			3.10
Hot Springs	San Joaquin		.43			.30	.51	1.88	.43	2.47	.73										.56										.93	8.24
Hullville (near)	Coast	.49			.44	1.00	.53	1.07	1.05	.71	.03															.25	.22	.02			.28	.29	6.38
Idyllwild	do		.41			.42		.40	.20	3.26	.75										.97	.80	.10								1.22	8.53
Independence	Owens	.02	.02			.58	.60	.52	.50	1.02											.16	.01	.01								.46	3.90
Indio	Desert									.10											.24	.48		.04								0.86
Inskip	Sacramento	1.58			.18	2.06	.21	2.05	2.73	2.75	T.		T.								T.	T.	T.			.25					1.26	13.07
Ione	San Joaquin	.20	.64			.60		.17		1.10	.32										.22	.22									1.00	4.47
Iowa Hill	Sasramento	2.51	.62			1.10		1.25	.42	2.34	.18										.05	.06									.56	3.16	12.25
Isabella	San Joaquin		.20			.91		1.40	2.00	.19											.67	.14									1.04	6.55
Jacksonville	do	.10	.60			.42	.10	.70	T.	2.00											.10	.22	.04										4.28
Jamestown	do	1.00	.35			1.05		.95	.20	2.00	.05										.35	.10									.10	2.30	8.45
Jenny Lind	do	.20	.38			.72			.42		.98	.30								.50	.28										.80	4.58
Jolon	Coast	T.				1.25		.91	.10	2.40										T.	.18	.02	.39				.05		T.		.62	5.92
Julian	do					.50		.20		2.60												2.75										6.05
Kennedy's Mine	San Joaquin																																‡7.82
Kennett	Sacramento	.34	.04			.28	.10	.20	2.00	7.74																	.60				.70	12.00
Kentfield	Coast	.46				2.55	.44	2.33	2.62	2.88											.11					.25		.06			.84	1.25	13.79
Kernville	San Joaquin		.19			.45	1.00	1.28	1.95	.15									.40	.40											.80	.60	7.22
King City	Coast					1.40		.09		1.06										.08	.15	.18										.19	3.15
Knights Landing	Sacramento	.20	.08			1.24		.56	.22	1.50											.22	.16	.08				.14				.18	.56	5.16
Knob	do																																
La Grange	San Joaquin	.23	.07			.60		.32	.57	1.02											.30	.29									.04	1.56	5.00
Lakeside	Coast					.65				1.95										.37	1.00										1.50	5.47
La Porte	Sacramento	2.94	.63			2.16	.05	2.07	2.55	3.13	.35										.16	.03	.38			.20	.04				2.60	2.85	20.14
Lathrop	San Joaquin		.16			.98		.83	T.	1.15	.02										.22	.20				.04	.16				.50	4.26
Laurel	Coast	.25				4.10		1.80	.15	3.00										.05							.15				2.10	11.60
Laytonville	do				.50		2.37	1.23	.98	.29										.25						.46					.85		6.93
Le Grand	San Joaquin			.15	.64		.60			1.30	.10									.60	.05										1.55	4.99
Lemon Cove	do		.32			.71		.88													.63		.14								1.00		3.68
Lick Observatory	Coast	.63				.74		.22	.08	2.04	.02										.55	.03	.07			.20	.08				.02	2.19	6.87
Livermore	do																																‡5.77
Lodi	San Joaquin	.37				1.08	.05	.33	.20	.96	.04									.07	.33	.04				.23					.15	1.43	5.34
Lone Pine	Owens	.10	T.			.20		.60		1.20												.30	.30								.07	.15	2.92
Long Camp	San Joaquin	2.00	.28			1.40	.20	.92	.30	1.65	.38																				.40	4.30	11.83
Long Valley	Mountain Lakes	.16	.07	T.		.09		.13	.07	2.13	.12										.03					.27					.74	1.20	5.01
Lordsburg	Coast						.75			1.95	.45											1.35		.58							1.73	6.81
Los Alamos	do					1.20		.37	.71	2.35										T.	.66	.31	.20								1.30	7.10
Los Angeles	do		.01			.40	T.	.03	2.29	.84											.98	.11	.08	T.							.11	2.15	7.00
Los Banos	San Joaquin		.45		.77			.55		.95										.27	.20		.10										3.29
Los Gatos	Coast	.20				2.80	.10	.62	.40	1.62										T.	.14	.03				.31	.02				.11	2.28	8.63
Los Vaqueros	do		2.00					.90													.25		.17										3.32
Lowe Observatory	do							.74		7.96													1.60	.18							8.50	18.98
Lyonsville	Sacramento																																
Lytle Creek	Coast							.65		.57	6.20	.21									1.27	1.52	.30	.50							7.50	18.72
Macdoel	Klamath																																
Madeline	Mountain Lakes	.65		T.	T.	.20	.10		.40	.10	T.	.10									T.	.08	T.	.05		T.		T.			T.	.40	2.08
Magalia	Sacramento	.84			1.60	.20	3.74	4.39	4.86	.12										.05						.32					.52	1.86	18.50
Mammoth Tank	Desert									.10						.10					.25	.20	.01									.02	0.68
Mariposa	San Joaquin		1.11			1.11		1.05	.03	3.41											.12	.42									2.50	9.75
Marysville	Sacramento			.90			1.00	.45		1.25											.18										.11	.80	4.99
Mecca	Desert									.05											.73		.04	.03									0.85
Melones	San Joaquin	.20	1.14			.90	.10	.64		1.80	.12										.16	.14	.02								.10	1.60	6.92
Menlo Park	Coast	.09				1.80		.30		1.35	.17										.10						.09					1.75	5.65
Merced	San Joaquin		.12			.47		.68	1.00		.03										.22	.15		.07								.18	2.92
Merced Falls	do	.17			.37	.04	.19		1.26	.01										.13	.13	.02								.01	1.05	1.54	4.92
Mesa Grande	Coast		.19			1.30			.28	2.60	.97										1.10	2.28	.29									.99	10.00
Mill Creek (1)	San Joaquin	3.18	.68			1.87	.05	.83	.26	2.27	.37								T.	.14		.08									.60	2.62	12.95
Mill Creek (2)	Coast		.17			.53		.01	.92	1.87											1.37	.30	T.	.17							.08	2.53	7.95
Mills College	do	.88			1.37		.30	.46	.67	1.03	.14									.07	.07					.02					.28	1.48	6.77
Milo	San Joaquin				.70	.69		2.10	4.06												.53										1.10	9.18
Milton (near)	do					.68	.25		1.20	.21											.43	.01				T.					.60	2.17	5.55
Modesto	do		.15				.55	.65		.60											.20	.30									.05	.85	3.35
Mojave	Desert																																‡2.10
Mokelumne Hill	San Joaquin	1.44				.96	.53		2.08	.23											.39	.17									.30	2.79	8.89
Mono Ranch	Coast					1.18		.28	.72	2.80											.95	.91	.26								4.64	11.74
Montague	Klamath		.05			.20		.15	.11	.10																					.60	1.21
Monterey	Coast		.32			1.27		.28		1.60											.33	.17									1.45	5.42
Monterio	San Joaquin		.45				.50	.25		.55												.75	.25								1.00	3.75
Montgomery Creek	Sacramento								2.20	2.22																.41					.59	1.29	6.71
Monumental	Coast				1.50	.09	.50	1.00	1.18	1.85	.50	1.32	.42																	1.30	1.63		11.29
Morina Dam	do																																
Mount Tamalpais	do	1.10			.90	.22	.21	.47	1.78	.12										.03	.05	T.				.09	.03	.03			.91	1.36	7.30
Mount St. Helena	do	.83				.70			3.25	3.70	.41										T.					.25					1.35	10.49
Napa (1)	do	.83	.04		T.	1.56	.12	.69	.60	2.46	.03									.09	.08					.12	.02				.62	.78	8.03
Napa (2)	do	.16	.51			1.31		.51	.36	2.34	.09										.14	.06					.09				.30	.74	6.64
Needles	Colorado									.32											.19	.53	.05	.05								.06	1.20
Nellie	Coast		.50			1.34			.80	5.15	.90									3.00	4.00										1.65	17.34
Nevada City	Sacramento	1.80	.21			1.16		1.10	.82	2.15	.16	T.	.01								.08	.06	.22			.14					.91	2.22	11.04
Newcastle	do	.04			1.41	.02	.52	.09	1.16	.04											.26	.07	.02			.03					.26	2.15	6.07
Newhall	Coast					1.00		.38	2.68	.73										.09	.75		.22								1.95	4.46	12.26
Newman	San Joaquin	T.				.85		.80		.92	.03										.18	.17	.06									.68	3.69
Nimshew	Sacramento	1.75	.15		.22	2.36	.30	2.75	2.98	1.85											.02	T.				.11	.03				.47	1.58	14.57
North Bloomfield	do	2.00	.80			1.60	.84	.80	.64	2.00	.10										.05	T.	T.	T.		.04				1.60	.80		10.47
North Fork	San Joaquin	.32	1.05	.02		1.17		1.51	.32	4.12	.17										.32			.01							4.35	13.36
North Lakeport	Coast			.44	.36		1.00	.75	1.00	.17											.02					.22					.40		4.36
Oakdale	San Joaquin		.16			.35	.02	.28		.68											.37	.48									.05	.97	3.36
Oakland	Coast	.52			.13	1.39	.58	.26	1.14	.48	.09									.04	.07					.03	.01				1.48	6.22
Oakville	do	.50	.78			2.37	.95		1.92	2.47	.04																.34				.24	.36	8.24
Ojai Valley	do					1.20		.33		4.54											1.18	T.	.16							T.	4.87	12.28
Orland	Sacramento				.94		1.00	.13	.71																T.	.26					.09		3.13
Orleans	Klamath				.55		1.28	1.20	.94	.44		.34	.22							.03		.05			.67					.09	1.10		6.91
Oroville	Sacramento				.70		2.06	1.41	1.08													.08			.08						.63	.93	6.97
Osena	Coast					.23			1.25	.85										1.00											1.30	4.00	8.83

TABLE 2.—*Daily precipitation for December, 1909. District No. 11*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
California—Cont'd.																																	
Palermo	Sacramento	.65				.90		1.50	.65												.10					.12					.55	4.47
Palm Springs	Desert									.50											1.00	.25									.10	1.85
Parkfield	Coast					.32		.92	1.12	1.90											1.08	.32	.18								1.18	7.02
Pasadena	...do		.05			.47		.05	.40	3.13											.36	.80	.04	.08							3.28	8.66
Paso Robles	...do					1.00	.20	.50		2.80											.50	.20	.20	.40							.50	6.30
Peachland	...do	.60			.55	1.67	.26	2.02	2.98	1.26	.10									.07	.04					.20	.05	.02			.58	.20	10.60
Penstock Camp	San Joaquin	1.95			.90		.80	.15	3.15	.21										.15	.05								.20	2.51	2.50		12.57
Peyton	Sacramento																																
Phoenix Dam	San Joaquin																																
Pilot Creek	Sacramento	2.76	1.24					3.88	.84	4.41	.38										.15		T.			.10					.85	2.70	17.31
Pine Crest	Coast																																2.10
Pittville	Sacramento		.50			1.00		.60													.16		.07								.06	1.64	8.32
Placerville	...do	1.08	1.32				1.04	.52	.11	1.84	.48									.01	.02					.04	.06	T.			.51	.96	4.71
Point Lobos	Coast	.32			T.	.85	.35	.34	.47	.68	.10										.21	.31		.14	.02						T.		3.19
Point Loma	...do	.02	.03	.04			.80			1.40	.17	.01				.04				.02						.06	.04	.11			.30	.03	3.50
Point Reyes	...do	.21			.91	.05	.42	.12	1.09	.14																						.44	4.30
Pollasky	San Joaquin		.44			.68	.16	.96		1.04											.28	.30										.55	2.78
Porterville	...do	.10				.15	.50	.03	.79	.05										.43	.18											
Poway	Coast																														3.47	9.70
Priest Valley	...do	.05			1.00		.20	.50	.06	3.15	.06										.58	.38	.25								1.25	1.15	8.50
Quincy	Sacramento	.50				1.10	.10	.80	1.25	1.85	.18										.05	T.	.15			.12					.14	.05	4.35
Red Bluff	...do	.37			.62	.52	.76	.49	1.16	.08		T.									T.					.16					.27	.23	6.55
Redding	...do	.23			.99	.72	.76	1.00	1.05	.87	.01	.02	T.													.40						1.10	4.43
Redlands	Coast		.02			.27	.10	T.	.06	.96	.07										.61	.59	.14	.51								2.25	5.66
Reedley	San Joaquin		.22			.79		.83		.92											.63										.30	1.06	5.64
Represa	Sacramento	.68	.24			1.36		.37	.04	1.37	.11										.11										.10	6.70	21.32
Rialto (near)	Coast		.15			.95		.22	2.00	5.85											2.50	.60	2.00	.25							.12	.60	4.92
Rio Vista	Sacramento		.32			1.10		.74		1.34	.08										.24	.12	T.				.24	.02			1.40	5.03
Riverside	Coast		.02			.28	.06	.06	.05	1.47											.55	.54	.27	.33							.15	.95	5.60
Rocklin	Sacramento	.55	.29		T.		1.84	.55	.05	1.05	.02										.10	.05									.12	.74	5.24
Rohnerville	Coast	.45			.72	.63	.10	.34	.27	1.11			.12							T.		T.	T.	.16		.28					.18	1.03	3.87
Sacramento (1)	Sacramento	.14			.26	.22	.33	.02	1.23	.13										.03	.17	.06				.07		T.			.20	1.08	4.71
Sacramento (2)	...do	.24			.22	.89	.33	.12	.69	.56										T.	.26	.04				.08					.30	.43	8.22
Saint Helena	Coast		.62			2.00		1.01	.48	3.01	.06										.08						.23					1.65	4.90
Salinas	...do	.10	.16			.43		.64		1.75	.13																	.04			T.	2.90	7.19
San Bernardino	...do		.03		T.	.48	.03	T.	.17	1.73	.02									T.	.53	.04	.08	.01								.43	3.76
San Diego	...do		.03			.91			.63	1.10										.01	.04	T.			.04	.02	T.		T.	.46	1.09	5.59
San Francisco	...do	.53			.96	.28	.66	.02	1.40	.06	.02										.85	.71		.30							.05	2.39	5.37
San Jacinto	...do					.61	.17		.08	1.42	.10										.06	.18	.07			.18	.01						
San Jose	...do	.20			.28	.94	19	.01	.54	.27																				T.	.04	2.36	10.09
San Leandro	...do																			.14	.82	.08	.23								.15	.82	5.61
San Luis Obispo	...do	.03	.04			1.40	.05	.86	3.44	.51											.08						.06						
San Mateo	...do	.19				2.30		.32		1.38	.11										.30	.27	.19									.72	4.30
San Miguel	...do					.70		.14	.03	1.95											.40	.20	.14									.45	4.89
San Miguel Island	Ocean	.17				1.25		.56	1.36	1.36																							1.25
Sangor	San Joaquin									.90	.10	.04					.04	.09	.08														
Santa Ana River	Coast																																2.30
Santa Barbara	...do					1.17		.45	1.45	2.44	.27										1.29	.13	.03										9.53
Santa Clara	...do	.17				1.39	.07	.16	.25	.53										.07	.19	.06				.25	.01				.15	1.98	5.28
Santa Cruz	...do	.62			1.50		2.40		2.80	.37											.35						.15				2.10	1.10	11.39
Santa Margarita	...do					1.25	.70	1.80	7.70											.25	.48	.30	.22								.42	13.12
Santa Maria	...do					.55		.27	.77	1.50										.57	1.15		.08								1.00	5.89
Santa Monica	...do		T.			.84				3.50												.73	T.								1.63	6.70
Santa Rosa	...do	.64			.21	2.04	.22	1.18	1.47	.97	.04															.14	.05				.35	.30	7.61
Sausalito	...do	.85			1.73		.40	.97	1.35	.75																					.55	1.50	8.10
Selma	San Joaquin		.17			.46		.72		.68											.22	.44									.40	3.09
Shasta	Sacramento	.17			1.07	.94	2.18	.73	.12	.06																.93					.42		6.62
Shingle Springs	San Joaquin	.95	.99					1.70	.10	1.75	.41																				1.58	7.48
Sierra Madre	Coast		.15			.54		.09		4.65											.44	1.18	.17								3.85	11.07
Sisquoc Ranch	...do				.90		.20			2.84										.60	.25		.79			.73			2.11			8.42
Sisson	Sacramento																			.10					.50	.20				.06	.32	.20	6.19
Soledad	Coast				1.90		.40	.63	1.88																						.25	1.35	4.10
Sonora	San Joaquin	1.32	.38			.96		.40		.70											.11	.33									.11	2.44	8.59
Southeast Farallon	Ocean					.84		.64	.21	2.17	.14										.29	.05											
Spreckels	Coast	.03	.18			.48		.58		1.74	.15										.35	.10	.05									1.55	5.21
Stirling City	Sacramento	1.10	2.00			1.90	.30	.75	2.80	3.55																			.05		.30	1.40	14.05
Stockton (1)	San Joaquin	.17	.02			.94		.52	.25	.74											.42	.02				.22					.07	1.45	4.82
Storey	...do				.75		.70			1.10										.02	.45					.05					2.00	5.00
Suisun	Sacramento	T.				1.20		.65	.13	2.00	.33										.48		.02								.03	.40	4.61
Summerdale	San Joaquin	.90		1.58		1.49		1.91	.36	3.25	.30																				.11	7.52	19.92
Summit	Sacramento																																28.30
Surrey	Coast					.51		.03		3.33											1.10	.05	.17										4.30
Susanville	Mountain Lake	.15	.06			.49	.10		.14	.27												.10	.17								20	.30	.40	9.69
Tamarack	Sacramento	.76	1.02	.20	.15	1.14	.10	.27	1.02	1.25	.28	.40										.31	.22		.17						.95	2.04	2.38
Tehachapi	San Joaquin							.05		1.00	.20		.50												.40						.30		10.34
Tehama	Sacramento	.23				.30		2.09	1.00	1.80																						.48	2.93
Three Rivers	San Joaquin		.63			.62	.03	1.65	.04	2.08											.53	.01										.98	4.52
Towle	Sacramento	1.70	2.00			1.40		.83	.73	2.90											.10									T.	T.	2.15	6.57
Tracy	San Joaquin		.16			1.01		.50	.80												.08	.02	.07			.03	.15					.45	10.91
Tulare	...do	.10				.18		.43	.65	.10											.21	.54										1.62	3.27
Tulare (near)	...do																																3.83
Tustin (near)	Coast						.86		.27	1.87	.09										.12	1.03		.84								.40	5.48
Ukiah	...do	1.10			.60	1.17	.40	.05	1.15	.57	.05										.06					.25	.08				.16	.17	5.81
Upland	...do					.64		.18		4.30											1.63	.04	.62									4.00	11.41
Upper Lake	...do	.59			.43	1.18	.31	.56	.39	.65	.03															.09	.05				.17		4.65
Upper Mattole	...do	.15				2.05		.57	1.60	1.87	.39	.02	.05	.05							.04		.20			.98	1.14				.12	1.09	10.89
Vacaville	Sacramento	.21			1.60		.88	.77	3.87	.02										.12	.12	T.				.32				.16	.71	.67	9.45
Valley Springs	San Joaquin	.22	.65			.91		.24		1.50	.24										.27	.27	.02									.93	5.25
Ventura	Coast																																12.79
Visalia	San Joaquin																			1.25	1.40	.06	.42								2.28	7.93
Warner Springs	Coast					.64		.06	.60	1.22																					T.	0.75
Wasco	San Joaquin									.75											.48	.22					.04				2.10	1.41	10.41
Watsonville	Coast	.34			1.82		1.40		2.30	.21												.02	T.	.03		.06	.03				.63	1.86	15.39
West Branch	Sacramento	2.07	.30		.03	2.10	.10	2.13	3.34	2.49	.20											.27										.69	3.21
Westley	San Joaquin					.96			.40	.89																				96	1.06	1.07	10.74
West Point	...do	1.38	1.90			.73	.04	.53	.03	2.82	.22																				1.42	1.86	9.31
West Satticoy	Coast					1.12		.30	1.27	2.30											.90		.14								.56	1.00	5.99
Wheatland	Sacramento	.28				1.16	.21	.76	.79	.83											.29	.02	.02			.07					.12	.01	3.05
Willows	...do	.04			.08	.67	.45	.52	.60	.26		T.								.01	.03					.26	T.				3.16	13.38
Woodleaf	...do	2.40				1.25	.50	.98	2.15	2.64											.16	.14									.12	4.06	13.12
Yosemite	San Joaquin	1.80	1.11			.85		1.04	.22	3.49	.37										T.	.06	T.										

TABLE 3.—*Maximum and minimum temperatures at selected stations for December, 1909. District No. 11, California.*

Date.	Lakeview, Oreg.		California.																									
			Alturas.		Barstow.		Branscomb.		Brawley.		Colusa.		Eureka.		Fresno.		Independence.		Los Angeles.		Mount Tamalpais.		Nevada City.		Porterville.		Red Bluff.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	41	14	43	31	72	31	51	38	70	35	61	58	50	43	62	49	67	32	66	47	52	40	50	47	63	40	53	45
2...	45	13	35	13	70	40	45	29	74	39	59	41	48	41	52	37	54	28	56	48	40	32	50	31	51	43	50	38
3...	42	10	30	2	75	27	48	22	60	41	51	34	44	32	47	30	37	18	57	42	37	29	47	21	47	31	47	32
4...	43	7	31	− 1	70	15	34	22	57	28	41	29	44	32	48	32	38	9	57	37	41	32	33	19	52	27	39	29
5...	43	8	30	19	58	25	43	22	52	32	41	35	46	34	49	39	40	10	48	41	39	34	35	28	50	37	37	32
6...	41	4	31	− 3	56	27	37	25	59	37	40	33	51	33	45	30	28	3	55	39	40	33	38	14	52	33	35	31
7...	41	6	38	19	45	35	49	35	60	38	42	36	54	48	58	43	34	17	55	49	46	40	43	30	59	39	36	34
8...	40	7	43	32	55	40	49	46	64	39	52	42	62	46	59	48	36	26	59	50	51	45	47	41	65	44	50	34
9...	43	15	44	28	55	39	50	36	63	47	59	52	47	41	58	49	47	28	59	51	48	37	40	31	60	53	54	40
10...	35	11	37	25	55	38	52	32	64	47	52	35	51	43	56	40	34	16	61	47	44	39	47	31	55	38	47	38
11...	35	11	39	20	52	28	54	34	65	42	52	42	58	48	46	38	33	10	56	46	46	38	35	25	49	33	50	38
12...	34	10	44	32	54	27	52	37	65	35	51	41	56	49	44	39	34	12	70	48	52	41	54	25	47	35	51	39
13...	40	15	45	28	60	32	53	36	69	35	54	34	50	39	44	41	41	15	67	49	48	39	60	28	46	38	58	37
14...	40	11	44	25	58	32	67	32	69	39	60	33	63	36	51	40	40	22	71	46	51	34	63	28	49	40	61	46
15...	45	19	49	15	55	28	68	35	63	46	63	46	64	38	55	32	38	20	70	56	53	46	64	29	56	30	64	42
16...	41	19	46	16	56	23	66	34	68	35	62	41	59	41	55	30	39	20	73	51	52	42	67	26	57	28	64	44
17...	46	22	43	20	48	27	67	35	60	35	63	37	66	40	55	34	38	23	61	42	51	45	58	26	56	31	60	46
18...	40	19	45	13	45	14	62	32	56	27	60	35	52	39	55	34	36	11	58	39	50	43	61	23	56	29	61	31
19...	30	19	39	16	48	18	44	31	56	24	59	31	48	42	55	35	32	8	57	39	47	33	44	22	59	32	47	32
20...	47	9	33	13	48	18	49	34	46	34	59	40	49	37	46	41	28	11	51	44	34	31	44	30	49	41	50	39
21...	30	9	34	4	43	32	45	33	59	40	46	35	52	35	54	42	28	14	55	38	36	32	40	23	56	40	48	34
22...	33	15	35	15	44	30	46	28	56	45	50	41	48	35	49	42	27	14	57	45	39	35	48	30	51	40	52	34
23...	30	14	34	7	46	32	48	24	57	44	50	31	46	32	45	34	32	10	61	45	45	35	49	21	44	40	49	32
24...	32	15	39	10	40	30	44	30	60	33	49	30	52	40	45	34	29	6	62	45	44	36	51	22	55	30	46	34
25...	36	17	38	28	46	26	46	35	58	35	45	38	52	47	56	33	28	7	64	46	40	35	41	27	55	32	43	39
26...	37	18	42	15	43	22	56	37	60	35	49	40	57	38	57	32	29	4	64	40	43	34	53	26	58	30	55	36
27...	44	19	45	9	44	24	61	36	60	28	57	40	56	37	58	32	33	3	64	42	50	39	64	24	59	31	61	34
28...	45	10	50	8	47	29	63	32	59	38	58	34	54	37	52	37	35	13	65	50	52	45	69	24	61	34	64	36
29...	41	11	51	11	51	28	67	32	64	35	57	33	62	38	58	35	35	14	71	51	57	38	67	25	62	36	62	34
30...	39	9	43	22	51	35	53	44	68	43	56	40	58	45	57	45	37	20	74	59	54	44	50	31	65	37	47	41
31...	37	6	39	24	60	42	49	32	62	50	50	41	46	39	58	44	49	26	59	54	48	32	38	32	63	45	48	42
Mns	39.2	12.3	40.0	16.6	53.2	28.8	51.2	32.6	61.4	37.5	53.2	38.0	53.1	39.5	52.5	37.8	36.7	15.2	61.7	46.0	46.1	37.4	50.0	27.1	55.1	36.0	51.2	36.9

Date.	California.																											
	Redlands.		Sacramento.		San Diego.		San Francisco.		San Jose.		San Luis Obispo.		Santa Barbara.		Santa Rosa.		Sisson.		Stockton.		Summit.		Susanville.		Yosemite.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1	67	38	55	30	62	46	57	50	63	48	64	50	64	42	58	54	51	26	57	47	.....	.....	51	42	40	34		
2	53	38	51	42	58	48	54	45	54	39	56	47	65	52	55	30	34	21	54	38	49	.....	46	21	45	29		
3	52	34	47	35	57	42	51	42	51	29	49	41	64	34	51	30	33	12	49	34	.....	.....	32	15	38	21		
4	54	26	43	29	58	39	48	38	47	26	51	30	56	33	45	24	28	21	44	26	.....	.....	31	13	37	17		
5	43	31	48	35	54	41	52	44	53	34	51	42	55	39	52	39	31	8	50	32	.....	.....	36	23	35	28		
6	53	30	43	34	57	44	51	43	46	32	51	33	56	36	51	30	33	19	53	32	.....	10	29	4	33	9		
7	54	42	55	43	57	48	57	48	63	43	56	43	55	46	54	39	39	33	55	36	.....	.....	37	22	40	29		
8	62	46	55	46	64	53	58	51	57	51	61	51	61	50	55	51	39	34	55	47	.....	.....	44	32	37	24		
9	59	51	54	43	59	55	57	48	58	47	58	44	63	56	57	39	34	16	56	47	.....	.....	39	30	39	24		
10	56	43	48	41	59	47	53	45	57	40	58	42	57	47	53	36	33	17	52	42	.....	.....	40	20	40	29		
11	62	35	54	37	62	43	56	43	57	35	64	48	64	40	56	33	40	30	46	39	.....	.....	37	16	38	19		
12	70	35	44	36	66	44	52	44	53	36	65	40	64	42	54	37	46	28	44	40	.....	.....	47	26	42	20		
13	68	52	46	36	62	47	58	43	57	35	63	52	63	43	60	34	42	18	46	32	.....	.....	40	25	40	24		
14	68	38	57	35	61	45	61	45	58	34	68	42	67	40	66	31	42	20	46	33	.....	.....	37	20	43	20		
15	63	35	53	32	70	48	63	46	66	33	72	49	70	39	63	36	42	20	45	33	.....	.....	37	14	50	24		
16	66	33	53	35	65	50	58	45	62	30	72	42	70	40	59	27	45	21	50	32	.....	.....	35	15	42	19		
17	57	35	60	34	63	47	61	46	63	36	63	35	65	39	66	36	44	22	50	32	.....	.....	38	13	42	18		
18	54	28	54	40	56	39	58	47	62	30	62	34	65	37	63	32	46	21	50	32	.....	.....	38	14	40	16		
19	56	27	44	35	56	36	49	42	49	34	55	29	58	35	48	42	32	25	49	33	.....	.....	39	15	40	10		
20	47	38	45	40	56	49	43	41	45	39	49	41	51	42	47	36	33	11	46	34	.....	.....	34	23	38	23		
21	50	37	44	38	58	45	48	43	48	36	49	37	53	38	52	29	34	12	47	38	.....	.....	30	22	36	12		
22	50	35	50	39	59	48	51	42	50	32	52	44	58	45	55	27	37	11	49	35	.....	.....	35	20	40	20		
23	56	41	48	36	61	48	52	40	52	32	56	44	55	43	54	25	37	20	44	32	.....	.....	21	11	40	22		
24	60	30	49	34	61	45	53	41	59	31	60	37	60	39	54	30	38	28	43	35	.....	.....	32	14	40	14		
25	59	32	44	40	62	45	50	45	49	45	57	38	61	38	53	40	32	20	43	35	.....	.....	34	16	44	17		
26	57	30	48	35	58	43	53	45	54	36	64	44	60	35	54	46	48	20	44	38	.....	.....	33	27	36	16		
27	62	32	58	40	59	42	58	47	60	41	68	42	65	37	58	41	47	17	55	37	.....	.....	31	25	34	12		
28	60	39	49	37	66	49	52	46	53	33	61	38	67	44	52	30	41	20	48	33	.....	.....	28	20	42	18		
29	67	38	54	37	67	50	57	45	59	33	72	45	73	52	60	30	49	29	54	34	.....	.....	26	20	44	23		
30	64	49	50	41	71	60	54	44	56	41	71	51	60	54	56	41	34	27	51	38	.....	.....	31	19	41	28		
31	54	52	48	39	64	58	54	41	55	38	60	46	59	55	52	43	32	20	50	43	.....	.....	36	30	40	31		
Means	58.2	37.1	50.1	37.9	60.9	46.6	54.2	44.3	55.3	36.4	59.9	42.0	61.4	42.3	55.3	35.4	38.5	20.9	49.2	36.1	.....	.....	35.6	20.3	39.9	21.0		

Climatological Data for December, 1909.

DISTRICT No. 12, COLUMBIA VALLEY.

EDWARD A. BEALS, District Editor.

GENERAL CLIMATOLOGICAL CONDITIONS.

The month in nearly all portions of the Columbia Valley was the coldest December in the last 25 years; steady low temperatures prevailed without any warm or any extremely cold days. The precipitation was deficient, although there was a greater fall of snow than usual, the deficiency being caused by the absence of rain which, in the valleys and on the plateaus, generally falls more abundantly than it did this year. The snow stayed on the ground continuously in places where ordinarily it soon melts, and in localities where snow seldom falls the ground froze to a depth of an inch or more.

The steady cold weather and the deficiency of precipitation were caused by areas of high pressure obstructing the passage of low pressure areas along their usual tracks. On the 2d an extensive high pressure area made its appearance over Alberta, and it was not until the morning of the 9th that its center had reached the Dakotas. During this period a low pressure area off the north Pacific coast was prevented from moving inland, and northeasterly winds prevailed. These were cold winds, and as they drained into the valleys the warm air was displaced and cold weather set in that lasted throughout the month. From the 13th until near the end of the month the weather was controlled by high pressure areas generally central over British Columbia or the northern Rocky Mountain States, and no low pressure areas came near enough to materially influence the weather until the 25th, when a small disturbance caused general precipitation, and on the 29th, when a large disturbance crossed British Columbia and moved eastward in the direction of the Great Lakes. Most of the precipitation occurred during the first half of the month, when the low pressure area was off the north Pacific coast and the high pressure area was over Alberta, and that which fell afterwards, except near the end of the month, was local and generally light.

There were many valleys were the snow covering was insufficient to fully protect fall wheat, but it is believed this crop suffered little injury, as it is only when the ground alternately freezes and thaws that the roots of the plants are upheaved and later are killed by being exposed to the drying effect of the air. In the Willamette Valley and in portions of the Coast and Puget Sound drainage areas, it is customary to leave cabbages, turnips, beets, and carrots in the ground until they are marketed, and the loss to these crops by freezing was considerable. The weather during November was so stormy that a large portion of the crop of potatoes had not been dug when the cold weather set in, and this crop also suffered a heavy loss on account of the freezing weather.

The losses to stock were not great, although much suffering occurred. Range cattle and sheep had, for the most part, been rounded up and placed in their winter corrals before the cold weather set in. In Idaho, some sheep were lost through the winter feeding grounds becoming covered with snow and the impossibility of getting corn shipped in and delivered in time to prevent the weaklings from succumbing to the combined effects of cold and hunger. Also in Montana, a few bands of range sheep were caught out in the open at the beginning of the cold spell which began with high winds and driving snow, and some were lost before their herders were able to get them to sheltered places.

The low temperature, while not seriously impeding traffic, proved very damaging to produce in transit, especially during the early part of the cold spell in consequence of there not being enough refrigerator cars on the local lines to meet the demand for them. Stocks in the hands of the country merchants became exhausted, and on this account the wholesalers took extra risks in their shipments. Later the railroads were able to furnish more refrigerator cars, and, although the weather was even colder, the markets were kept better supplied and fewer goods were damaged in transit.

Building operations were delayed by the cold weather, and in many cases were suspended altogether. Very little concrete work could be done, and railroad construction, which it was expected could be pushed forward rapidly, was greatly hindered; one engineer, supervising the work of over 2,000 men, estimated that only about 60 per cent as much work was done as would have been the case had ordinary weather prevailed.

The flood last month in the Skagit River culminated near its mouth during the first few days of December, at which time the river reached the highest stage in its history. On the first day of the month the dikes in the lowlands gave away under the wash and pressure of the great volume of water, and the flats were flooded with 2 to 6 feet of water. The damage to oats in the sack and to baled hay, together with the loss of stock, is estimated to amount to not less than a half millon of dollars. On the 13th the dikes burst the second time, and the lowlands in the Skagit Valley were again flooded, thus adding to the disaster. During the first 3 or 4 days of the month, the lowlands at the mouth of the Chehalis and Willapa rivers were inundated by the combined effects of freshets and unusually high tides, and a further loss occurred in those localities, which in the Willapa Valley is estimated to be not less than $100,000, and in the Chehalis Valley a smaller amount.

TEMPERATURE.

The mean temperature as obtained from 219 stations, was 26.6°, and it was below normal in all sections. The departures ranged between 2° and 9°, being the greatest in the lowlands and least at high elevations, thus showing that the cold weather was due to air drainage or radiation, and that the layer of cooled air was a mile or more in depth. In the Columbia Valley, from the International Boundary to the gorge in the Cascade Mountains, the departures ranged between 5° and 8°, being greatest in the middle portion of the valley and least in the north above the mouth of the Spokane River. In the valleys west of the Cascade Mountains, the departures everywhere were about 5°, and in the Snake River Valley in Idaho they ranged between 5° and 9°. The warmest section was near the mouth of the Rogue River in Oregon, where mean temperatures of 40° or more occurred. It was coldest, as usual, at the headwaters of the Snake River, where mean temperatures between 8° and 12° were recorded. At the headwaters of the branches in Montana, the mean temperatures ranged between 16° and 19°, while elsewhere they varied according to elevation, being generally highest near the coast and lowest in the highlands. The lowest temperatures occurred generally during the third decade, and the highest during the first half of the month. The highest mean temperature was 46.2° at Gold Beach, Oreg., near the mouth of the Rogue River, at an elevation of 40 feet, and the lowest mean temperature was 8° at Camas, Idaho, near the headwaters of the Snake River, at an elevation of 4,815 feet. The highest temperature was 69° at Gold Beach, Oreg., on the 17th, and the lowest was −30° at Alta, Wyo., also on the 17th.

PRECIPITATION.

The average precipitation, as obtained from 303 stations, was 3.22 inches, which is below the normal. There was a marked deficiency at all lowland stations, and the only places

where excesses occurred were at high elevations in the mountains of Oregon, Idaho, and Montana. The portion falling as snow was greater than usual, but owing to the absence of high winds the snow drifted but little, and it lay loosely on the ground at the end of the month. The ground beneath the snow was frozen and moist in most localities, but the depth of frozen soil was not great. Precipitation was heaviest along the west slope of the Coast Range, and ranged between 18.88 and 2.28 inches, being least near the immediate coast and greatest near the summit of the mountains. Between the Coast and the Cascade Mountains, the average was about 4 inches, and to the east of the Cascade Mountains the amounts varied between 1 inch and 4 inches, being least in the valleys and greatest in the mountains. The period with heaviest precipitation was from the 1st to the 12th, inclusive. Precipitation was general on the 25th, and again on the 30th and 31st. Between these dates scarcely any rain or snow fell west of the Cascade Mountains, and that falling to the east of this range was light and local in character. The greatest monthly amount was 18.88 inches at Happy Home, a station in Coos County, Oreg., in the Umpqua Valley. The least monthly amount was a trace at Plains, a station in Sanders County, Mont., in the Columbia Valley. The greatest 24-hour fall was 5.00 inches at Quiniault on the 11th. Quiniault is a station on the west slope of the Olympic Mountains in Washington.

RIVER CONDITIONS.

The stages in the Columbia River and its principal tributaries averaged slightly higher than usual. In the main stream, the highest water was on the 1st and the lowest at the end of the month, while in most of the tributaries the highest water occurred about the 13th and the lowest near the end of the month. On the Columbia River, at Vancouver, Wash., the stages ranged between 13.0 feet and 3.4 feet, and at Wenatchee, Wash., the range was between 11.8 feet and 6.9 feet. On the Snake River, at Lewiston, Idaho, the highest water was 5.7 feet on the 1st, and the lowest was 1.8 feet on the 26th. At Salem, Oreg., on the Willamette River, the highest stage was 14.5 feet on the 14th, and the lowest was 3.1 feet on the 30th. The only floods of the month were in the Puget Sound Basin and in the Chehalis and Willapa rivers, where the high water caused by the rains in November did not subside until about the 5th. Information regarding these floods can only be given in general terms as no gaging stations are maintained along their courses. The flood in the Skagit River was the most damaging, owing to the dikes giving way and the waters flooding a rich farming country, while the floods in the Willapa and Chehalis rivers principally affected the logging industry through the breaking of the booms, which permitted the logs to escape.

MISCELLANEOUS PHENOMENA.

The prevailing winds were easterly and the highest velocity was 86 miles from the east on the 6th at Tatoosh Island, Wash. The sunshine was deficient east of the Cascade Mountains, and there were more than the usual number of bright days to the west of this range of mountains.

IDAHO GEOGRAPHIC SOCIETY.

Idaho contains, perhaps, as much unexplored country as any State in the Union. No accurate map of the State has ever been made, and there are not sufficient data available from which to make one. The geographic nomenclature is almost hopelessly confusing and is in many cases totally inappropriate. Recognizing this condition, and being possessed of a desire to assist in remedying it, some engineers, Weather Bureau officials, and others took up with the governor of the State some time ago the matter of organizing a State geographic society. Governor Brady gave the matter his approval, and issued a call for a meeting for the purpose of organizing such a society. Pursuant to this call, a meeting was held in the Senate Chamber of the Capitol at Boise on December 13. This meeting was addressed by the Governor, together with other State, federal, and city officials, and prominent educators, and a permanent organization was effected. The purpose of the society, as set forth in the constitution, is the gathering, preservation, and diffusion of geographic knowledge of the State of Idaho, and the intention is to cooperate with all agencies working toward this end.

SNOW CONDITIONS IN THE MOUNTAINS OF THE UPPER COLUMBIA BASINS IN MONTANA AT THE CLOSE OF DECEMBER, 1909.

Kootenai Basin.—The snowfall was below the average in the Cabinet Mountains, and about normal in the Purcell range. The late fall rains left the ground well saturated and it became solidly frozen in most sections before the winter snows set in. The flow of water during the month was below the average.

Flathead Basin.—There was about the normal snowfall in the northern portion of the main range. The depth at the close of December was about 3 feet at the 4,000-foot level; the snow was not drifted to any extent and the ground was frozen. The stream flow was about normal.

Bitter Root Basin.—The snowfall was nearly normal on the east slope of the Bitter Root Mountains and the depth at the 5,000 level was 3 feet or more. The ground was moist and frozen. The stage of water was higher than usual during the month.

Missoula Basin.—The snowfall was deficient over the greater portion of this basin. The deficiency was more pronounced in the Bitter Root Mountains than in the Kootenai, Cabinet, or the Main ranges. But little drifting took place and the snow lies loosely on the ground in most places. In many localities the ground under the snow is not frozen. The stage of water in many of the small streams was higher than usual.

OPERATIONS AT THE UMATILLA PROJECT DELAYED BY COLD WEATHER.

Field operations had to be, to a large extent, suspended in December. The intense cold prevented any work in laying reinforced concrete pipe which has been in progress for the past few months. It has also interfered with excavating a large drainage ditch, the ground being in many places frozen hard. The most serious effect of the continued frost was, however, the accumulation of ice in the storage feed canal leading from the Umatilla River to the Cold Springs Reservoir. This canal is used during the winter and spring months to fill the Cold Springs Reservoir with a supply to be drawn upon during the dry months. It is important that service on this feed canal be uninterrupted, as the season during which water can be diverted from the river consists of only a few weeks, so that even a week's interruption is a serious matter. We had been running a constant flow through this feed canal of about 240 cubic feet of water per second, when the accumulations of floating ice got so heavy that ice jams were formed at various points, damming up the canal so that breaks were imminent. The situation was only saved by releasing large quantities of water through wasteways and shutting off the supply. At the present time a greatly reduced quantity is being flowed through the canal, with the result that storage of water in the Cold Springs Reservoir is a great deal less than it would otherwise have been. It is to be earnestly hoped that the severe weather in eastern Oregon will terminate, otherwise serious results may follow. This situation is worthy of especial comment, as ordinarily the winters in this locality are exceptionally mild, freezing weather being seldom encountered save for short intervals. During the 4 years I have known this part of the country nothing of the kind has been experienced, not so much for severity as for duration.

WATER POWER DEVELOPMENT.

During the past year plans have been completed for 2 hydraulic power plants on the South Fork of the Lewis River,

Wash., for the Dole Lumber Company. These plants will be of 300 and 700-horsepower each, or a total capacity of 1,000-horsepower; the 300-horsepower plant was constructed last year on Rock Creek, a tributary of the South Fork of Lewis River, 2½ miles below the 700-horsepower plant, which will be constructed on Big Tree Creek in the early spring. These plants are primarily for furnishing power to the mills of the Dole Lumber Company, but later will supply current for lighting the town of Yacolt, about 3 miles north. These plants will cost about $20,000 for the hydraulic installation, being very economical sites for the generation of power.

There has also been designed a 3,000-horsepower plant on the East Fork of the Lewis River for other parties; the intake to be below the mouth of Big Tree Creek, the power-house to be situated near Lucia, a station on the Yacolt branch of the Northern Pacific Railroad. This power will be transmitted to Vancouver, Wash., but it is indefinite when construction will begin on this work. On the North Fork of the Lewis River surveys and plans have been made for a 12,000-horsepower plant. On January 3, 1909, the city of Tacoma voted to sell bonds and construct a hydroelectric power-plant on the Upper Nisqually River, Wash. Construction on a 20,000-horsepower plant will begin the coming spring.

NEWS ITEM.

Mr. George W. Boschke, Chief Engineer of the Oregon Railroad and Navigation Company, reports that the severe weather during December retarded their work to a considerable extent, especially on bridge foundation work and the like, where concrete is used. He does not favor putting in concrete, especially thin slabs, in cold weather.

On the new Deschutes line the weather was very cold, and while a force of from 2,400 to 2,600 men was maintained, they worked to considerable disadvantage. In fact he thinks on all the work in progress they did not make more than 60 per cent of the progress that should have been made if the weather had been more moderate.

THE WEST UMATILLA RIVER WATER-USERS' ASSOCIATION.

By JOHN W. CAMPBELL, Secretary.

Settlers owning approximately 10,000 acres of land west of Butter Creek near its mouth and west of the Umatilla River have organized a water-users association under the caption of "The West Umatilla River Water-Users' Association." Lands controlled by the members of this association lie under the system of the Western Land and Irrigation Company, which diverts water to feed its 20 miles of canals 1 mile above the diversion site of the Government near Echo, Oreg.

The object of the association is to cooperate with the ditch company in developing the country under its system and bring in settlers, as well as to regulate the use of water among the various users along the Umatilla River and its own canals, so as to avoid friction or litigation. It is probable that measuring gates will be installed this spring, but if a late season should prevent they will be put in after the irrigation season next fall.

The Western Land and Irrigation Company has contracted to furnish water to its patrons during March, April, or May or during flood-water season. The land covered by its canals is very smooth and ideal for alfalfa growing, and this bids to become the leading crop of this district. Already the section at the mouth of Butter Creek under this system is a heavy producer of alfalfa.

TABLE 1.—*Climatological data for December, 1909. District No. 12, Columbia Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of part'ly cloudy days.	Number of cloudy days.		
Montana.																				
Anaconda	Deer Lodge	5,300	8	17.8[c]	.....	46[b]	12	−16[b]	4	....	0.56	.....	.....	6.3	10	11	7	13	.....	C. D. Demond.
Bison Mountain	Powell	7,240	....																	C. H. Anderson.
Columbia Falls	Flathead	3,100	13	19.1[a]	− 6.5	44[a]	13	−11[a]	22	38[a]	2.62	+ 0.66	1.72	19.0	7	7[a]	4[a]	19[a]	sw.	Mrs. I. M. Kennedy.
Como‖	Ravalli	.....	2	20.6	.....	43	30	− 3	6	22	0.30	.....	0.13	.....	4	11	5	15	.....	Hiram Platt.
Darby	....do	3,825	....								1.00	.....	.....	.....	.....	.....	.....	.....	.....	W. A. Kerlee.
Dayton	Flathead	2,800	....																	Charles M. Lawson.
East Anaconda‖	Deer Lodge	5,500	4	17.7	.....	45	12	−12	4†	33	0.64	.....	0.20	5.6	8	11	7	13	w.	C. D. Demond.
Fortine	Flathead	2,975	4	16.0	.....	37	31	−11	6	23	1.22	.....	0.38	16.0	12	7	1	23	n.	Mike Petery.
Hamilton	Ravalli	3,575	7	24.6	.....	51	30†	− 8	6	31	0.33	.....	0.17	2.0	4	8	13	10	n.	J. B. Currie.
Hat Creek	Powell	6,000	....								0.91	.....	0.50	17.9	6	4	12	15	w.	M. K. Landreth.
Jocko	Missoula	3,100	1																	George W. Robbins.
Kalispell	Flathead	2,965	11	19.2	− 4.7	41	13	− 2	21	28	1.01	+ 0.84	0.34	9.1	11	6	4	21	nw.	U. S. Weather Bureau.
Lost Creek	Deer Lodge	5,200	....																	Frank Henault.
Missoula	Missoula	3,225	26	21.9	− 2.6	47	31	1	23	24	0.11	− 1.32	0.03	1.6	5	.....	.....	.....	.....	U. S. Weather Bureau.
Ophir	Powell	8,800	....								0.70	.....	0.25	9.0	5	8	10	13	w.	E. S. Wilton.
Ovando	....do	4,207	11																	S. B. Muchmore.
Philipsburg	Granite	5,275	6	18.4	.....	45	30	−12	7†	31	0.39	.....	0.20	4.3	4	12	8	11	n.	Prof. G. T. Bramble.
Pipestone Pass	Jefferson	7,000	....								0.83	.....	0.39	9.0	6	12	13	6	nw.	Mrs. Th. Kiermeyer.
Plains	Sanders	2,475	11	22.8	− 5.4	42	12†	2	7	25	T.	− 0.67	T.	T.	0	18	0	13	sw.	M. H. Pierce.
Pleasant Valley	Flathead	3,500	3	17.0	.....	48	11	−16	23	39	0.53	.....	.....	8.0	5	17	2	12	.....	A. D. Stillman.
Polson	....do	2,920	2	22.5	.....	43	13	5	6†	21	0.37	.....	0.22	4.0	3	.....	.....	.....	.....	F. P. Brown.
St. Ignatius	Missoula	2,700	1	22.0[a]	.....	49[a]	20	− 2[a]	7†	46[a]	0.53	.....	0.14	6.2	8	6[a]	7[a]	17[a]	.....	U. S. Reclamation Service
St. Regis	....do	2,650	2	23.4	.....	42	16	0	23	29	0.57	.....	0.30	3.3	3	5	26	0	nc.	R. D. Lee.
Saltese	....do	3,600	5								2.36	.....	0.76	21.0	6	16[a]	0[a]	14[a]	w.	E. K. Tarbox.
Snowshoe	Flathead	4,500	3	15.6	.....	41	29	− 6	6	27	4.26	.....	1.38	35.2	14	9	4	18	w.	J. S. Riter.
Troy	....do	1,880	15	27.0	− 1.6	60	3	− 8	22	49	1.47	− 1.04	0.60	9.0	4	10	9	12	nw.	W. E. Milnor.
Upper Lake McDonald	....do	3,200	3	20.5[d]	.....	39[d]	13	− 6[d]	23	32[d]	2.75	.....	0.65	.....	10	3[d]	9[d]	15[d]	s.	F. F. Liebig.
Woodville	Jefferson	6,376	....								0.39	.....	0.11	5.4	7	11	13	7	sw.	Anna Kinman.
Wyoming.																				
Afton	Uinta	6,200	6	10.4	.....	38	9	−28	18	40	0.85	.....	0.20	8.5	11	19	12	0	.....	A. V. Call.
Alta	....do	....	....	11.2	.....	35	1†	−30	17	48	1.42	.....	0.35	.....	10	7	7	17	n.	Mrs. Lucy Brown.
Bedford	....do	5,900	10	8.7[d]	−10.2	35[d]	1†	−25[d]	18	46[d]	1.17[d]	.....	0.37[d]	11.7[d]	5[d]	8[d]	5[d]	14[d]	w.	C. G. Heiner.
Snake River	Yellowstone Park	7,000	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Army.
Nevada.																				
San Jacinto	Elko	.....	5	15.8	.....	45	7	− 6	22	37	0.40	.....	0.22	1.0	2	5	5	21	sw.	Moses Jones.
Idaho.																				
Albion	Cassia	.....	9	20.8	.....	44	12	−13	4	39	0.86	.....	0.20	13.5	12	2	12	17	w.	G. A. Asline.
Almo	....do	.....	....								0.75	.....	0.19	10.0	9	16	9	6	.....	Wm. L. Eames.
Bear Valley	Boise	.....	....																	Francis Wallis.
Blackfoot	Bingham	4,503	13	15.0	− 8.4	40	1	−12	18	31	1.96	+ 1.05	0.70	8.0	9	2	16	13	ne.	E. A. Dowd.
Blanche	Lincoln	.....	....																	Solon A. Bray.
Bogus Creek	Boise	4,200	....																	F. P. Ingraham.
Boise	Ada	2,770	24	27.4	− 4.8	49	9	12	6	31	1.53	− 0.19	0.65	6.9	10	2	8	21	nw.	U. S. Weather Bureau.
Bonanza	Custer	6,600	....																	Mrs. Emma Walter.
Bonners Ferry	Bonner	1,850	3	22.9	.....	39	11†	− 2	22	28	1.93	.....	0.62	19.0	8	7	5	19	sw.	W. H. Heideman.
Boulder Mine	Boise	4,800	....								4.62	.....	1.71	45.5	11	16	9	6	.....	Patrick Moriarty.
Buhl	Lincoln	3,800	4	23.2[b]	.....	42[b]	8	− 6[b]	21	21[b]	.....	.....	.....	.....	.....	.....	.....	.....	w.	Dr. D. P. Albee.
Burke	Shoshone	4,082	3	20.0	.....	36	29	0	23	34	2.70	.....	0.85	23.0	9	12	4	15	nw.	W. A. Hall.
Caldwell	Canyon	2,372	5	26.1	.....	42	1	6	24	24	1.38	.....	0.37	10.0	8	3	12	16	e.	W. J. Boone.
Camas	Fremont	4,815	....	8.0[b]	.....	35[a]	31	−28[a]	17	51[a]	0.48	.....	0.12	12.0	11	13	0	17	n.	Ednah Faulkner.
Cambridge	Washington	2,651	14	19.0	− 7.0	45	1	−11	21	32	3.67	+ 0.15	0.85	28.0	7	.....	.....	.....	nw.	C. H. Shepherd.
Chesterfield	Bannock	5,424	13																	Chas. L. West.
Clawson	Fremont	.....	....								0.58	.....	0.50	11.5	5	16	6	9	.....	E. J. Hopkins.
Cœur d'Alene	Kootenai	2,157	17																	Jas. T. Scott.
Culdesac	Nez Perce	1,520	....	30.6	.....	47	1	14	6†	21	0.19	.....	0.07	7.0	4	8	6	17	.....	R. R. Richmond.
Dent	....do	1,350	4	27.6	.....	42	10	9	22	19	1.57	.....	0.39	4.0	11	7	8	16	.....	Emil Schuessler.
Driggs	Fremont	6,097	3	8.0	.....	38	31	−30	17	46	0.96	.....	0.34	14.7	10	8	7	16	s.	Walter H. Durrant.
Edie	....do	.....	....	11.0	.....	40	11	−12	4	36	0.42	.....	0.20	9.0	3	18	3	10	n.	Geo. B. Edie.
Emmett	Canyon	2,350	3	24.8	.....	45	8†	8	21†	22	1.82	.....	0.65	9.0	8	11	3	17	se.	E. L. Marvin.
Forney	Lemhi	.....	13	16.2	− 5.2	48	13	−17	21	47	0.78	− 1.03	0.43	12.0	2	21	0	10	sw.	E. P. Treloar.
Garnet	Elmore	2,575	10	30.0	.....	47	9	15	20	22	0.80	.....	0.32	2.0	5	5	7	19	e.	Mrs. Inez H. Davis.
Gilbert‖	Nez Perce	3,030	....																	J. B. Loomis.
Glenns Ferry	Elmore	2,569	2	27.2	.....	49	1	7	20	25	1.66	.....	0.59	5.3	8	3	9	19	.....	I. E. Perkins.
Grand Forks	Shoshone	3,000	....	22.0[d]	.....	38	2	2	4	24	2.63	.....	1.20	20.0	8	11	4	16	e.	H. F. Kottkey.
Grandview	Owyhee	.....	....	28.2	.....	49	9	7	24	29	.....	.....	.....	.....	.....	9	4	18	se.	N. G. Massey.
Guffey	....do	2,381	....	28.4	.....	45	9	11	28	22	1.28	.....	0.90	1.0	5	19	0	12	w.	F. N. Perry.
Hailey	Blaine	5,347	7	14.2	.....	37	1	− 7	19†	32	2.46	.....	0.95	22.5	6	10	13	8	sw.	U. S. Forest Service.
Henry	Bannock	.....	....																	N. W. Irsfield.
Hotspring	Owyhee	2,752	4	28.3	.....	48	9	10	24	20	0.65	.....	0.50	2.0	3	4	7	20	.....	J. M. Waterhouse.
Idaho City	Boise	4,000	11								3.25	.....	1.73	34.5	6	.....	.....	.....	.....	Mrs. Emma Hammer.
Idaho Falls	Bingham	4,742	14	16.0	− 5.8	37	1†	−11	18	38	1.17	− 0.12	0.30	18.0	8	6	6	19	ne.	Dr. T. M. Bridges.
Indian Valley	Washington	2,999	....								5.29	.....	0.90	35.0	10	17	1	13	n.	W. E. Henke.
Irwin	Bingham	6,500	....	10.2	.....	39	9	−36	17	47	.....	.....	.....	9.0	5	11	15	5	.....	Miss Martha A. Beam.
Kellogg	Shoshone	2,330	5	20.3	.....	41	30	6	22	28	1.65	.....	0.37	5.3	8	9	2	20	sw.	W. McM. Huff.
Kooskia	Idaho	1,261	....	28.4	.....	42	25	9	22	27	1.43	.....	0.35	3.8	10	9	5	17	sw.	U. S. Forest Service.
Lake	Fremont	6,700	17	11.8	− 5.5	40	30	−16	24	32	1.20	− 0.85	0.60	12.0	6	.....	.....	.....	nw.	J. Sherwood.
Lakeview	Bonner	2,250	12	25.2	− 6.2	41	16	7	6†	20	1.10	− 2.11	0.45	12.0	7	5	0	26	nw.	E. D. Faust.
Landore	Washington	5,300	6	18.3	.....	37	13	− 2	4	24	3.10	.....	1.07	.....	15	12	6	13	.....	Mrs. Emma L. Brown.
Lardo	Boise	5,050	5																	E. W. York.
Lewiston	Nez Perce	757	15	32.4	− 5.1	55	12	16	22	20	0.63	− 0.89	0.26	2.4	10	2	5	24	e.	U. S. Weather Bureau.
Little Camas	Elmore	5,000	....								4.41	.....	2.00	49.4	12	10	5	16	w.	Solon McCoy.
Lost River	Blaine	5,700	15																	B. B. Harger.
Lowry	Owyhee	.....	2																	W. D. Winter.
Mackay	Custer	5,897	2	13.0	.....	35	1	−11	25	43	0.56	.....	0.23	2.0	3	21	0	10	nw.	U. S. Forest Service.
Meadows	Washington	3,950	7	18.3	.....	42	1	−15	21	27	2.62	.....	0.72	36.5	12	6	11	14	.....	Chas. A. Hackney.
Milner	Twin Falls	4,097	6	19.5	.....	43	9	0	21†	25	0.11	.....	0.03	0.6	5	19	6	6	e.	R. A. Hanson.
Moscow	Latah	2,748	17	26.6	− 5.1	44	12	10	4†	21	1.47	− 1.16	0.52	10.0	10	10	1	20	e.	University of Idaho.
Mountainhome	Elmore	3,150	4	23.6	.....	44	1	3	27	25	1.84	.....	0.93	7.5	6	7	13	11	nw.	Mrs. Ellen Marion.
Murtaugh	Twin Falls	.....	3	21.1	.....	46	9†	− 2	18	39	0.85	.....	0.33	11.5	8	8	11	12	e.	J. E. Steinour.
Nez Perce‖	Nez Perce	3,182	....	26.2	.....	43	10†	0	6	26	0.75	.....	0.22	7.5	4	13	0	18	.....	P. W. Mitchell.
Oakley	Cassia	4,191	17	23.2[a]	− 6.3	41[a]	9	2[a]	21†	35[a]	0.45[a]	− 0.07	0.10[a]	2.5[a]	7[a]	2	17	12	s.	John Adams.
Orofino	Nez Perce	1,027	5	29.2	.....	50	1	10	22	22	1.54	.....	0.50	4.2	11	7	14	10	.....	Geo. Alteneder.
Payette	Canyon	2,159	16	23.4	− 7.6	44	1	− 2	28	31	1.52	+ 0.07	0.30	7.2	8	7	3	21	n.	E. F. Allen.
Pebble	Bannock	5,277	....	13.4	.....	38	31	−16	17	39	2.78	.....	0.75	22.8	9	15	8	8	s.	Arthur P. Say.
Pierson	Custer	7,000	....								2.44	.....	1.04	20.0	4	23	0	8	n.	David P. Clarke.
Pleasant Valley	Ada	3,000	2	25.2	.....	37	1†	5	24	26	.....	.....	0.55	6.7	7	6	2	23	se.	C. E. Friedrich.
Pocatello	Bannock	4,483	11	19.3	− 9.1	40	31	− 4	3	34	0.89	+ 0.03	0.69	8.6	11	1	11	19	se.	U. S. Weather Bureau.

TABLE 1.—*Climatological data for December, 1909. District No. 12*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of part'ly cloudy days.	Number of cloudy days.		
Idaho—Cont'd.																				
Pocatello Nursery	Bannock	5,396	3																	Peter F. Wrensted.
Poplar	Bingham			15.4		52	13	−20	17	50	1.76		0.32	24.5	11	6	11	14	sw.	Stuart Lee.
Poplars‖	Canyon	2,425	10								1.13	− 0.23	0.70	1.0						N. S. Dils.
Porthill	Bonner	1,665	17	22.2	− 6.4	40	31	− 1	22†	19	1.55	− 1.18	0.57	24.0	7	11	2	18		H. A. French.
Pyle Creek	Boise	3,100									4.21		1.55	32.3	8	11	6	14	ne.	Walter L. Cole.
Rupert	Lincoln	4,204	3	30.2		46	1	− 3	26	31	1.22		0.28	16.0	9	6	8	17	e.	Will Parry.
St. Maries	Kootenai	2,263	13																	J. S. Turnbull.
Salem	Fremont	5,000	5																	Geo. H. A. Harris.
Salmon	Lemhi	4,040	4	13.4		39	1†	−19	21	33	0.85		0.27	12.0	7	12	6	13	n.	E. K. Abbott.
Salmon River Dam	Twin Falls		2	23.2		41	9	4	24	34	0.59		0.26	5.5	6	7	12	12	s.	Arch M. Gilbert.
Sheep Hill	Boise	5,000									5.88		2.65	48.2	7					Clifford M. Gardner.
Shoshone	Owyhee	6,200	3	19.6		39	31	0	11	26	2.30		0.90	17.0	8	2	17	12	e.	O. A. Petitt.
Silver City	Lincoln	3,968									3.44		0.85	26.5	16	9	2	20	s.	A. O. Treeman.
Soldier	Blaine	5,140	13	12.2	− 5.5	45	3	−26	16	52	3.55	+ 1.69	1.00	28.3	8	1	23	7		W. W. Leek.
Standrod	Cassia		5	19.8		41	31	− 1	24	27	0.74		0.24	10.1	9	17	2	12	w.	T. B. Jones.
Sugar	Fremont		2	12.2		36	1†	−20	17	41	2.16		0.50	24.1	16	5	9	17	sw.	Geo. F. Webb.
Sunnyside	Elmore			23.0		45	1	− 3	23	35	1.66		0.86	8.5	8				se.	E. A. Wilmot.
Tilden	Bingham	4,420		13.5		39	1	−16	4†	36				21.5		14	7	10	sw.	Mrs. W. A. Edwards.
Twin Falls	Twin Falls	3,825	4	21.6		45	9	1	24	28	1.63		0.28	13.3	15	0	24	7	s.	Clyde C. Anderson.
Vernon	Fremont		12	12.0	− 3.8	36	31	−10	18	32	2.03	+ 0.28	0.45	27.8	14	7	10	14	e.	A. M. Slatery.
Wallace	Shoshone	2,728	2	24.4		41	30	6	25	20	2.51		0.71		13				e.	U. S. Weather Bureau.
Warfield	Blaine	6,386																		Wm. H. Warfield.
Wendell	Lincoln	3,400		22.6		41	31	2	26	26	0.67		0.87	8.7		10	5	16	w.	Chas. L. Dingler.
Washington.																				
Aberdeen	Chehalis	163	13	35.2	− 5.9	52	12	18	22	24	8.68	− 5.45	3.07	5.0	13	2	23	7	e.	C. Weatherwax.
Anacortes	Skagit	60	15																	Douglass Allmond.
Baker	....do	200	3	31.6		46	13	17	4	22	6.90		2.19	8.5	11	12	1	18		Robt. M. White.
Bellingham	Whatcom	60	14	36.8*	− 5.5	56*	27	18	4†	36*	2.02	− 2.22	1.45	T.	4	14	6	11		Sanford B. Mayhew.
Blaine	....do	53	12	33.2	− 3.6	50	12	18	4†	18	4.48	− 1.38	1.75	2.5	11	7	7	17	ne.	G. A. Ruring.
Bremerton	Kitsap										4.78	− 3.00			12					U. S. Navy Yard.
Cedar River	King		2								4.30		1.42	2.5	12	4	10	17		Geo. Landsburg.
Centralia	Lewis	212	16	34.2	− 6.6	52	12	16	22	25	5.63	− 2.43	1.09	6.0	11	7	12	12	s.	I. S. Turner.
Cheney	Spokane	2,351	10																	G. A. Fellows.
Chopaka	Okanogan	1,200	1																	Mrs. J. S. Myers.
Clealum	Kittitas	1,930	10	20.5	−10.3	45	12	− 4	22†	30	2.39	− 2.08		28.0	9	13	4	14	ne.	J. A. Balmer.
Clearbrook	Whatcom	140	6	31.7		49	12	13	28	23	3.95		2.94	3.0	6	10	9	12	ne.	Geo. Gibbs.
Clearwater	Jefferson	135	13																	Alfred Ritchie.
Colfax	Whitman	2,300	20																	W. H. James.
Colville	Stevens	1,635	9	22.3	− 4.4	40	12	− 6	23	29	1.91	− 0.05	0.76	13.5	7	13	1	17	nw.	W. L. Sax.
Conconully	Okanogan	2,300	9	18.4	− 8.7	40	13	− 6	23	25	1.80	− 0.55	0.46	16.7	7	11	3	17		Wm. Baines.
Coupeville	Island	150	13																	W. T. Howard.
Crescent	Lincoln	2,250	9	23.0	− 6.7	39	12	0	22	26	1.70	− 0.65	0.51	7.0	6	8	3	20	n.	Otto Wollweber.
Davenport	....do	2,450		21.6		39	12	3	22	21	0.81		0.50	4.0	7	7	2	22	ne.	W. H. Reed.
Dayton	Columbia	1,700	23	27.8	− 6.5	52	12	6	4†	35	1.75	− 1.44	0.57	5.5	8	2	6	23		W. W. Hendron.
Detroit	Mason	31	1	36.5		50	12	20	4	18	7.57		2.58	13.0	10	7	8	16	ne.	Walter O. Eckert.
Dixie	Walla Walla	5,000									4.83		0.80	31.8	12	8	3	20	sw.	T. Z. Andrews.
Duckabush	Jefferson	380	1	31.0[f]		50[f]	1†	15[f]	22	30[f]	9.91		2.62	24.0	9[e]	9[e]	3[e]	14[e]	n.	Emery J. Finch.
East Sound	San Juan	500	14	35.4[m]	− 5.8	51	12	19[m]	31	24[m]						12[s]	7[s]	5[s]	n.	Benj. E. Harrison.
Ellensburg	Kittitas	1,571	21	19.3	− 8.9	44	13	− 7	22	31	1.08	− 0.55	0.36	12.1	5	15	2	14		R. Lee Barnes.
Ephrata	Grant	1,265	6	24.6[b]		45[b]	12	7[b]	22	25[b]						10[b]	0[b]	13[b]	n.	D. Chaffee.
Forks	Clallam	480		37.7[b]		51[b]	11	27[b]	22	11[b]						16[b]	3[b]	4[b]	ne.	C. W. Palmer.
Fort Simcoe	Yakima	1,427	15	26.4	− 6.0	54	13	10	23	30	2.12	− 0.31	0.60	20.0	8	5	6	20		Dr. G. A. Landes.
Goat Lake	Snohomish	2,900									8.70		2.75	26.0	9					C. M. Mackintosh.
Gold Creek	Yakima	2,600									1.95			19.5	8	19	4	8		John W. Anderson.
Goldendale	Klickitat	1,600	3	24.6		44	11	4	21†	31	3.35		1.05	20.0	10	8	5	18	e.	Klickitat Abstract Co.
Granite Falls	Snohomish	397	6								4.16	− 3.59	1.56		12	4	6	21	se.	C. H. Cleaver.
Hatton	Adams	1,100	4	25.3		46	13	− 8	4	29	0.90		0.34	4.7	6	6	5	20	nw.	Dr. A. V. Marion.
Huntsville	Columbia	1,400	1								1.98		0.47	6.0	9	4	5	22		Dr. B. Hill.
Irene Mount	Okanogan	3,015									0.64		0.43	8.0	5	16	3	12	n.	Mrs. E. W. Wheeler.
Kennewick	Benton	367	14	27.4	− 9.2	50	12	3	3†	31	0.93	− 0.17	0.40	7.0	5					L. W. Soth.
Kettle Falls	Stevens	1,265		24.4		43	1	− 1	23	22	1.58		0.65		7	10	3	18		Dr. A. E. Baldwin.
Kiona	Benton	430	4	28.6		52	12	2	6	25	1.31		0.46	4.5	5	3	6	22		Dr. F. S. Hedger.
Kosmos	Lewis	775	3	30.2		56	9	14	23	25	5.20		1.20	7.5	14	0	22	9	n.	Hon. J. A. Ulsh.
La Center	Clarke	250	12	31.1	− 8.9	53	11†	14	23	22	4.41	− 4.17	1.43	5.0	11	12	5	14	sw.	Joseph Brothers.
La Crosse	Whitman	1,400		28.0		48	13	− 1	4	25	2.22		0.65	12.0	12	9	1	21	nw.	M. E. Schreck.
Lake Clealum	Kittitas	2,171									3.75		0.82	37.1	11	8	5	18		U. S. Reclamation Service
Lake Kachess	....do	2,235		21.0		41	12†	2	22†	26	6.91		1.85	47.0	12	6	14	11	e.	Do.
Lake Keechelus	....do	2,479	1								7.30		1.80	55.0	10					Do.
Lakeside	Chelan	1,116	18	23.0	− 7.0	39	2	6	24	18	1.61	− 0.59	0.55	16.0	8	4	9	18	e.	W. H. Van Meter.
Laurel	Klickitat	1,900									5.05		1.07	7.5	12	8	9	14	w.	L. S. Strout.
Lester	King	1,614	5	30.0		49	27	7	3	29	3.70		1.65	20.5	8	14	2	15	e.	W. W. Clabaugh.
Lone Tree	Chealis	9		38.2		50	11†	28	4†	15	7.19		2.68	0.5	13	12	5	14	e.	U. S. A. Engineers Corps.
Longmire Spring	Pierce	2,800		32.3		45	15†	17	3†	15	5.10		1.65	22.2	10	12	0	19	n.	U. S. Forest Service.
Lost Creek	Okanogan	3,125									1.10		0.51	11.0	6	19	0	12	ne.	P. H. Leese.
Lucerne	Chelan	1,100	2																	Barbara Schearer.
Lyle (Pine Hill)	Klickitat	600	16																	Thomas J. Whitcomb.
McCumber's Ranch	Yakima	2,182									2.71		1.00	27.1	6	10	5	16	e.	Mrs. Mary McCumber.
Mottinger	Benton	307	9	30.8	− 6.8	57	13†	12	6	30	0.93	− 0.41	0.28	3.2	6	9	2	20	e.	G. H. Mottinger.
Mount Pleasant	Skamania	650	9	35.1	− 4.9	56	12	22	4†	22	3.76	− 4.55	1.45	T.	8	17	4	10	e.	F. M. Grout.
Moxie	Yakima	1,000	17	23.4	− 8.1	48	1†	− 5	22	35	0.85	− 0.24	0.34	8.5	7	6	7	18		H. B. Scudder.
North Head	Pacific	211	7	39.5	− 4.8	56	16	26	5	20	5.24	− 2.24	2.23	1.2	13	12	3	16	e.	U. S. Weather Bureau.
Northport	Stevens	1,950	10	25.0[f]	− 4.1	44[b]	31	− 3	6†	22[b]	1.14	− 0.91	0.42	11.4	7	14	5	12		A. L. Hager.
North Yakima	Yakima	1,076		24.6		48	12	5	22	21	0.93		0.39	8.5	6	8	6	17	nw.	Albert Bender.
Nutland	Klickitat			28.6		49	12	14	27	26	1.56		0.40		7					J. R. Shepard.
Odessa	Lincoln	1,540	6	25.6		45	13	9	6†	22	0.79		0.30	9.0	5	9	2	20	sw.	Wm. U. Neeley.
Olga	San Juan	50	19	36.7	− 5.0	54	12	22	3†	15	2.47	− 2.11	1.20	2.0	5	11	10	10	nw.	Cecil S. Willis.
Olympia	Thurston	200	31	34.6	− 6.5	52	12	16	22	25	6.30	− 3.38	2.08	7.5	13	5	8	18	ne.	M. O'Conner.
Omak	Okanogan			21.7		45	1	−10	22	30	1.42		0.50	14.2	9	4	7	20	n.	Wm. G. Tait.
Oroville	....do	922		24.8		42	1	2	23	25	0.55		0.25	5.5	4	5	9	17	s.	A. M. Dufield.
Peola	Garfield	5,000									1.30		0.54	7.0		5	10	16	sw.	Samuel Gruell, sr.
Pomeroy	....do	1,500	17	29.2	− 6.5	62	30	10	6	43	1.55	− 0.83	0.50	7.0	8	7	0	24	w.	Peter McClung.
Port Crescent	Challam	259	14	35.4	− 2.9	52	16	22	4	20	4.83	− 2.05	2.25	0.5	13	4	12	15	se.	U. S. Weather Bureau.
Port Townsend	Jefferson	80	19	37.2	− 4.3	51	12	25	3†	12	1.93	− 0.85	0.43	2.5	9	10	2	19	ne.	Frank Plummer.
Pullman	Whitman	2,550	17	26.4	− 5.9	44	12†	9	4	26	1.83	− 1.18		11.2		7	6	18	sw.	State Agricultural Col.
Quiniault	Chehalis	300	2	34.0		50	12	21	21	20	15.08		5.00	3.2	15	13	10	8	sw.	A. V. Higley.
Republic	Ferry	2,823	9	17.6	− 9.4	44	13	−11	23	26	1.06	− 0.87	0.56	11.5	7	11	3	17	nw.	Geo. B. Stocking.
Rex Creek	Chelan	1,135	2																	James W. Nicol.

TABLE 1.—*Climatological data for December, 1909. District No. 12*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Washington—Cont'd.																				
Ritzville	Adams	1,825	10								1.33	− 0.19	0.34		12					Agent, No. Pac. Ry.
Rock Lake	Whitman	1,750	3	26.3		49	1	10	6†	27	1.22		0.72	3.7	4	11	3	17	ne.	P. M. Ramsey.
Rosalia	do	2,425	17	27.0	− 4.6	41	2†	10	4†	24	2.10	− 0.38	0.70	3.4	11	4	5	22	sw.	Hans Mumm.
Russell's Ranch	Yakima	2,870																		John Russell.
Seattle (1)	King	123	18	36.4	− 4.8	52	12	25	23	16	2.60	− 3.35	1.37	2.1	12	5	5	21	n.	U. S. Weather Bureau.
Seattle (2)	do			35.1		51	12	22	4	17	3.25		1.20	5.1	11	6	6	19	s.	Univ. of Washington.
Sedro-Wooley	Skagit	38	12	33.4[b]	− 7.6	52	29	18[c]	3†	24[c]	4.75	− 0.97	2.00	4.0	11	10	8	13		H. L. Devin.
Sixprong	Klickitat	1,240	2	27.1		47	12	12	6	20	0.82		0.31	8.5	11	3	2	26	ne.	C. E. Comstock.
Skagit Power Dam	Whatcom			32.2		45	16	15	4	15	7.41		2.90	8.0	11	16	0	15		Skagit Power Co.
Snohomish	Snohomish	50	15	33.4	− 7.3	52	12	16	4	21	3.19	− 3.06	0.75	4.0	14	7	5	19	se.	Irving B. Vestal.
Snoqualmie Falls	King	667	10	33.2	− 7.4	51	12	20	21	18	4.68	− 3.31	1.96		16	18	3	10		O. N. Wiswell.
Snyder's Ranch	Okanogan	2,200									2.25		0.61	32.0	9	14	14	3	nw.	George M. Snyder.
South Bend	Pacific	16	14																	John L. Stevens.
Spokane	Spokane	1,943	28	25.7	− 5.1	45	12	6	22	26	1.56	− 1.06	0.64	6.6	9	3	4	24	n.	U. S. Weather Bureau.
Stehekin	Chelan	1,100	2																	M. E. Field.
Stokes Ranch	Okanogan	2,670									2.30		0.63	33.0	7	15	8	8	se.	Amos Stokes.
Sullivan Lake	Stevens	2,700																		Mrs. Jennie D. McAbee.
Sumner	Pierce	77	1	34.0		55	12	17	6†	23	3.54		0.79	2.1	10	9	3	19	se.	H. E. Thompson.
Sunnyside	Yakima	740	14	27.0	− 6.0	55	12	9	6†	30	0.81	− 0.08	0.40	6.1	5	7	5	19	w.	U. S. Reclamation Service
Tacoma	Pierce	213	23	35.3	− 5.0	56	11	19	23	19	4.95	− 2.38	1.72	10.3	12	7	3	21	sw.	U. S. Weather Bureau.
Tatoosh Island	Clallam	86	24	39.8	− 4.1	50	11	31	3	12	6.77	− 7.82	3.05	3.2	12	5	11	15	e.	Do.
Tieton	Yakima	2,000		20.4		48	12	− 2	23	23	3.46		0.95	38.0	10	16	6	9	e.	U. S. Reclamation Service
Touchet	Walla Walla	556	2	27.8		56	12	− 6	6	35	1.44		0.40	7.6	6	8	3	20	sw.	D. W. Dorrance.
Touchet Ridge	Columbia	2,500									4.07		1.02	27.5	8	21	1	9	ne.	R. H. King.
Trinidad	Douglas	900	5	23.3		46	1	5	22	20	1.00		0.50	10.0	4	10	5	16	e.	J. C. Wheeler.
Twisp	Okanogan	1,619	6																	Wm. G. Hughes.
Tyee	Chelan	2,000									3.40			32.5		8	8	15	w.	Elias McCrea.
Vancouver	Clarke	100	34	34.8	− 3.6	57	12	15	6	22	4.52	− 2.27	1.27	7.5	12	11	5	15	nw.	A. A. Quarnberg.
Vashon Island	King	110	20	36.4	− 4.6	51	12	22	4	16	4.29	− 3.27	1.53	T.	11	8	5	18	n.	Miss Gertrude McClintock
Wahluke	Grant	410	5	27.6		49	12	5	6	30	0.30		0.20	3.0	2	7	9	15		F. C. Koppen.
Wallace	Okanogan	4,000									1.43		0.60	14.4	4	4	14	13	s.	Geo. A. Wallace.
Walla Walla	Walla Walla	1,000	25	28.0	− 8.0	55	12	8	4	32	2.07	− 0.03	0.52	11.0	13	1	5	25	s.	U. S. Weather Bureau.
Waterville	Douglas	2,624	19	17.0[b]	− 9.0	43[b]	12	− 8[a]	22	26[b]	2.15	+ 0.11	0.60	22.5	9	13[a]	3[a]	14[a]		O. R. Hopewell.
Wenatchee (near)	Chelan	1,169	10	21.2	− 7.5	49	12	4	23	24	1.61	− 0.81	0.43	21.2	9	9	7	15	w.	George Pitcher.
West Branch	Spokane	2,600																		Martin A. Murray.
Wilbur	Lincoln	2,203	10	21.2	− 7.3	40	12	− 2	22	24	1.20	− 1.06	0.65	6.0	4	9	1	21	se.	Rollin J. Reeves.
Yale	Cowlitz	375	2	35.6		53	15	20	20	23	6.57		2.30	6.5	13	6	3	22	e.	L. F. Williams.
Zindel	Asotin	715	7	26.2		47	1	11	23	22	0.53		0.30	4.5	4	11	11	9	n.	M. W. Zindel.
Oregon.																				
Albany	Linn	214	33	35.4	− 5.6	52	16	16	6	26	4.96	− 2.54	1.10	11.0	13	10	4	17	s.	F. M. French.
Ashland	Jackson	1,940	25	37.6	− 1.9	57	16†	19	23	30	1.98	− 1.32	0.53	3.8	13	15	1	15	se.	F. H. Carter.
Astoria	Clatsop	11	47																	C. W. Lamar.
Baker City	Baker	3,466	20	19.2	− 9.0	39	9	− 6	21	25	1.64	+ 0.35	0.40	23.3	12	8	7	16	se.	U. S. Weather Bureau.
Bay City	Tillamook	14	13	40.3	− 4.8	62	15	21	22	33	9.64	− 6.64	1.58	0.5	15	15	2	14	se.	J. O. Bozarth.
Birch Creek	Wheeler	2,900		27.7[a]		51[a]	12	8[a]	6	24[a]	2.05[a]		0.80[a]	8.5[a]	5[a]	5[a]	13[a]	12[a]	sw.	F. S. Matteson.
Black Butte	Lane	1,200	8	34.0		48	1†	12	21†	24	6.15		1.40	3.0	11	10	9	12	e.	James A. Putman.
Blalock	Gilliam	237	10	29.8	− 8.2	50	12	0	3	36	1.34	− 0.14	0.68	15.0	4	4	2	25	e.	Geo. W. Long.
Buckhorn Farm	Josephine	1,300	10	35.4	− 4.1	54	12†	16	21	32	11.87	+ 0.68	2.93	14.5	12	10	4	17	n.	E. F. Meisser.
Cascade Locks	Hood River	100	18	31.4	− 7.5	49	12	20	7†	15	4.25	− 9.38	1.18	11.0	14	14	2	15	e.	Val W. Tomkins.
Cazadero	Clackamas	514		38.2		56	12†	15	6	25	5.09		1.10	2.0	14	13	1	17	se.	A. Drill.
Condon	Gilliam	2,884	1																	C. H. Williams.
Corvallis	Benton	600	7																	Oregon Agric. College.
Dayville	Grant	1,500	14	28.8	− 8.6	53	12	4	6	31	1.09	− 0.29	0.42	4.6	7	10	6	15	nw.	Dr. J. Campbell-Martin
Doraville	Columbia	600	7	32.4		48	12	18	22	17	5.95		1.56	14.9	16	6	5	20	se.	Jos. Hackenberg.
Drain	Douglas	300	6	37.0		56	12	12	22	29	4.68		1.02	3.5	12	4	7	20	nw.	Ira Wimberly.
Echo	Umatilla	625	5	28.0		54	12	0	6	23	1.20		0.30	8.5	6	4	2	25	w.	R. B. Stanfield.
Ella	Morrow	830	10	27.8		60	1	5	6	28	1.31	+ 0.24	0.50	16.0	7	6	0	25	ne.	C. F. Troedson.
Eugene	Lane	449	18	34.6	− 7.4	59	13	18	22†	23	3.60	− 3.01	0.78	6.8	13	9	7	15	s.	A. W. Jackson.
Fairview	Coos	142	11	41.4	− 4.5	58	8†	18	22	32	8.34	− 2.71	1.35	T.	14	14	1	16	n.	Wm. Bettys.
Fall City	Polk	355	11																	Chas. F. Vick.
Forest Grove	Washington	220	19	33.6	− 5.8	54	12	17	30	21	5.08	− 3.25	1.42	9.0	12	7	10	14	ne.	Pacific University.
Gardiner	Douglas	72	19	40.2[c]	− 5.4	60[c]	9	27[c]	21	19[c]	8.42	− 4.47	1.40	0.0	15	11[c]	5[c]	10[c]		Hon. J. S. Gray.
Glendale	do	1,441	5	38.0		57	13	18	22	21	2.90		0.60	8.5	9	12	6	13	nw.	B. J. Simpson.
Glenora	Tillamook	575	17	32.0	− 7.0	47	15	15	18	25	12.68	−10.58	2.40	5.0	15	17	1	13	sw.	Mrs. Jennie Recher.
Gold Beach	Curry	40	6	46.2		69	17	21	22	36	10.76		2.09		14	17	1	13	nw.	C. Dewey.
Granite	Grant	4,680	4	18.0		44	16	13	4	42	2.28		0.56	27.0	7	3	14	14	nw.	L. M. Ford.
Grants Pass	Josephine	956	20	35.0	− 5.1	56	12	17	21	27	5.01	− 0.56	1.21	3.0	20	10	2	19	sw.	John B. Paddock.
Grass Valley	Sherman	2,381	7	22.6		47	12	2	6	32	1.14		1.06	12.5	2	6	6	19	ne.	Agent, O. Ry. & N. Co.
Greenleaf	Lane	250	9	34.6	− 7.6	53	15	18	22	22	11.40	− 2.33	1.57	9.0	16	14	3	14	ne.	Wm. Wheeler.
Headworks	Clackamas	719	10	33.2		48	12	21†	4	19	6.64	− 3.77	1.43	15.4	15	14	4	13	e.	Portland Water Works.
Heppner	Morrow	1,950	20																	Geo. Whiteis.
Hermiston	Umatilla	450	4	27.8		52	12	− 4	6	29	0.93		0.25	8.0	8	7	3	21		C. W. Kellogg.
Hood River	Hood River	243	18	26.3	− 9.6	45	12	8	21	20	1.86	− 5.56	1.00	24.5	6	10	15	6	e.	H. L. Hasbrouck.
Huntington	Baker	2,110	7	27.4		46	12†	7	21	25	1.79		0.50	15.2	1	0	6	25	se.	J. M. Day.
Jacksonville	Jackson	1,640	20	34.9	− 3.0	49	31	18	23	21	3.58	− 1.15	0.86	6.0	11	13	1	17		E. Britt.
La Grande	Union	2,784	21	25.4	− 7.1	44	13	3	6†	23	1.16	− 0.95	0.30	10.5	7	9	5	17	se.	W. A. Worstell.
McKenzie Bridge	Lane	1,400	7	32.0		54	16	11	23	33	6.27		1.03		14	14	1	16	e.	Geo. Frissell.
McMinnville	Yamhill	180	21	35.9	− 4.8	55	12	18	23	24	6.27	− 1.54	1.38	15.5	13	18	3	10	n.	C. J. McKee.
Madras	Crook	2,150		16.2		42	15	−25	6	32	2.40		0.40	21.0	11					D. P. Rea.
Marshfield	Coos	12	7	42.0		59	15	23	23	24									sw.	Dr. E. Mingus.
Mikkalo	Gilliam	1,600	5	26.3		60	1	3	6	31	2.30		0.88	14.6	6	7	1	23	e.	J. T. Chandler.
Miramonte Farm	Clackamas	195	19	35.2	− 5.3	54	12	17	23	19	4.31	− 2.06	0.99	5.5	13	14	5	12	n.	G. M. Muecke.
Monroe	Benton	350	12	35.2	− 6.4	56	12	17	23	22	6.51	− 1.64	1.95	18.0	12	8	7	16	n.	John H. Starr.
Mount Angel	Marion	485	23	35.8	− 5.9	55	30	20	22†	27	5.63	− 1.82	1.04	0.3	13	18	2	11	sw.	Dr. U. F. Fisher.
Mountain Park	Hood River	1,550	4	27.0		45	13	13	21	19	6.31		1.35	33.5	15	4	4	23	e.	Raymond Markley
Newport	Lincoln	69	19	41.4	− 5.3	60	30	20	6	23	4.42	− 6.42	1.10	6.0	11	14	8	9	e.	Wm. Matthews.
Pendleton	Umatilla	1,272	19	28.4	− 8.2	53	30	2	6	34	1.91	+ 0.39	0.70	7.5	9	1	4	26		H. F. Johnson.
Pilot Rock	do	1,872		28.1		56	12	4	6	38	0.98[a]		0.31[a]	7.5[a]	9[a]	9[a]	14[a]	7[a]	nw.	John P. McManus.
Pompeii	Clackamas	3,580	14	27.4	− 5.7	54	29	9	6†	24	8.30	− 3.54	1.98	40.0	14	11	4	16	e.	O. C. Yocum.
Portland	Multnomah	57	40	35.6	− 5.9	58	12	24	4	20	4.47	− 2.74	1.29	10.3	11	11	5	15	e.	U. S. Weather Bureau
Port Orford	Curry	300	4	46.0		66	16	31	2†	27	10.05		2.30	0.0	14	13	8	10	nw.	Willis T. White.
Prineville	Crook	3,000	12																	C. I. Winnek.
Prospect	Jackson	2,750	4	32.8		56	16	10	20	34	3.96		1.30	28.0	12	11	10	10	w.	E. F. Graham.
Range	Grant		4	−17.0		40	8†	− 9	6	44	1.20		0.60	12.0	5	16	5	10		Craig Thom.
Riverside	Malheur	3,000	12					−10	6		1.58		0.40	15.0	8	12	13	6	n.	Mrs. Leah Fairman.
Roseburg	Douglas	523	32	36.8	− 5.1	58	12	19	22	19	3.68	− 2.41	1.06	0.3	16	1	10	20	s.	U. S. Weather Bureau.
Salem	Marion	120	18	36.4	− 5.8	55	12	21	6†	20	4.80	− 1.22	0.60	13.0	14	13	0	18	n.	M. P. Baldwin.

TABLE 1.—*Climatological data for December, 1909. District No. 12*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Oregon—Cont'd.																			
Siskiyou	Jackson	4,115	1	31.3	.....	50	16†	15	3	20	4.64	.....	1.45	30.1	14	12	3	16	sw.	Louise F. Bates.
Stafford	Clackamas	400	13	35.3	− 5.8	55	12	18	6†	26	5.48	− 1.92	1.09	6.0	14	.....	.....	.....	ne.	J. P. Gage.
The Dalles	Wasco	112	34	28.8	− 7.2	45	1†	10	6	18	3.09	− 0.19	0.99	29.5	11	6	1	24	e.	S. L. Brooks.
Toledo	Lincoln	50	19	41.6	− 3.0	60	1†	21	24	30	8.00	− 2.50	1.30	10.0	12	18	4	9	e.	C. B. Crosno.
Umatilla	Umatilla	340	19	29.6	− 4.5	52	1	11	6	24	1.14	+ 0.03	0.44	0.5	7	7	1	23	e.	Mrs. H. T. Duncan.
Vale	Malheur	2,450	17	23.0	− 6.7	47	1	− 5	6	35	1.45	− 0.25	0.37	13.0	9	7	3	21	ne.	H. P. Osburn.
Wallace Orchard	Polk	170	....	35.2	.....	58	12	17	6†	21	4.81	.....	0.66	16.0	13	10	11	10	.....	Chas. A. Park.
Wallowa	Wallowa	2,935	6	18.0	.....	42	13	−10	21†	30	1.42	.....	0.33	14.0	10	5	4	22	sw.	L. J. Coverstone.
Warmspring	Crook	1,600	7	24.0	.....	54	1	− 8	6	35	1.93	.....	0.65	23.5	5	13	10	8	nw.	Claude C. Covey.
Weston	Umatilla	1,800	19	26.1	− 8.4	48	30	3	3†	29	2.83	− 0.15	0.55	12.5	10	0	5	26	ne.	M. A. Baker.
Williams	Josephine	1,368	17	36.2	− 3.7	56	12	15	22	32	4.92	− 0.86	2.22	1.7	11	10	1	20	sw.	J. M. John.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Separate dates of falls not recorded.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for December, 1909. District No. 12, Columbia Valley.*

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Montana.																																	
Anaconda	Missoula	*	.13	.10		*	.08	T.		T.		T.	T.	T.			.05	T.	*	.05							T.				*	.15	0.56
Bison Mountain	do																																
Columbia Falls	Flathead								.20	.40	.30		.72													.60	.30		.10				2.62
Como	Bitter Root					.03	T.	.01					.13																		.13	0.30
Darby	do													.55					T.											T.	.45	1.00
Dayton	Flathead																																
East Anaconda	Missoula	.20	.07			.05		T.		T.		T.	T.	T.			.07		.01	.02	T.						T.				.06	.16	0.64
Fortine	Flathead							T.	.15	.38	.07	T.	.10	.03		.01	T.		T.	T.	T.			T.	.07	.15	.06	.07			.07	.06	1.22
Hamilton	Bitter Root					.17		.04					.01																		.11		0.33
Hat Creek	Missoula	T.	.01							*	.05					*	.18	.08	*	.09											.50	0.91
Jocko	Flathead																																
Kalispell	do							.04	.12	.28		.02	.12					.06					.02	T.	.01	.30	.02	T.			.02	T.	1.01
Lost Creek	Missoula																																
Missoula	do	T.				T.		T.	.02	.03	T.		.02	T.			.01	T.		T.				T.		T.	T.				.03	0.11
Ophir	do									.18			T.				.12	.28	T.	.07								T.			.25	0.70
Ovando	do																																
Philipsburg	do	T.		T.		.05	T.	T.		T.	.20						T.	.08		T.	T.										.06	0.39
Pipestone Pass	do		.39							.12	.11				.09				T.	.11											.01	0.83
Plains	Columbia								T.	T.			T.													T.				T.		T.
Pleasant Valley	Kootenai							*	.32			.16														.02				.03		0.53
Polson	Flathead										.22														.10					.05		0.37
St. Ignatius	do	T.	T.	T.				.03	T.	.07	.14		T.				.02	.14	T.	.03		T.				.08	T.				.02	0.53
St. Regis	Missoula								T.	.26			.30																	T.	.01	0.57
Saltese	do							.26	.15	.36			.47	.36																.76		2.36
Snowshoe	Kootenai	.05	.09	.01				.08	.32	.82	.07	.08	1.38	.11												.16	.01			.34	.74	4.26
Troy	do		T.							.35			.60											.22	.09		.20		.24	.02	.32		1.47
Upper Lake McDonald	Flathead								.34	.27	.28		.65				.12	.52	T.	T.												2.75
Woodville	Missoula		.03								.11			.03				.03	.10	.04											.05	0.39
Wyoming.																																	
Afton	Snake				.05	.10	.05	.05	.05	.05	.10	.05	.05	.20	.10																		0.85
Alta	do		.35	.07	.09		.01			.05	.24			.32	.04		.05														.20	1.42
Bedford	do		T.						.09	.35	.37			.29	.07																	1.17
Snake River	do																																
Nevada.																																	
San Jacinto	Snake	.18	T.	T.		T.	T.																									.22	0.40
Idaho.																																	
Albion	Snake	T.	.06	.08	.01	.12	.01	.05	.08	.07	T.		.16	.01		.01	T.	T.	T.	T.				T.								.20	0.86
Almo	do	.10	.07			.10		.10	.05	.10	.02		.02																			.19	0.75
Blackfoot	do	.07	.15		T.	.30	T.	.05	T.	.32	T.	T.	.27			T.		T.	T.				T.	.08	T.			.02	T.			.70	1.96
Blanche	do																																
Bogus Creek	Payette	T.	T.		T.	.06	.01	.13	.12	.62		T.	.27	T.		T.	T.	T.	T.	T.			.06	.05	T.	T.			T.		.12	.09	1.53
Boise	Boise																																
Bonanza	Salmon																																
Bonners Ferry	Columbia		T.				.07	T.	.29	.12	.14	.62														.07	T.	T.			.32	.30	1.93
Boulder Mine	Boise		.09	.15		.77	.41	.07	.37	1.71	.10	.63											.17								.15		4.62
Buhl	Snake																																
Burke	Columbia		.09						T.	.52	.12	.06	.66				.24									.12	.04				T.	.85	2.70
Caldwell	Boise					.02		.20	.35	.37			.21										.04	.08							.11		1.38
Calls Ranch																																	
Camas	Lost River Region		.12	T.	.01	.03	.06	.01	.05	.02	.01			.02	.05	T.					T.	T.	T.		T.			T.	T.			.10	0.48
Cambridge	Snake					.80		.02	.60	.80		T.	.85									T.	T.	T.	T.						.05	.55	3.67
Chesterfield	do																																
Clawson	do		.03			.01				.02			.50																		.02	0.58
Coeur d' Alene	Columbia																																
Culdesac	Clearwater		.04	.07		.04																								.04		0.19
Dent	do		.24					.09	.03	.34	.02	.39	.23	.12												.06	.04				.01		1.57
Driggs	Snake	.02	.10	T.	T.	.09		.04	.01	.06	.07		.13	.10	T.		T.							T.							.24	0.96
Edie	Lost River Region		T.			T.		.12	T.	.10		T.	T.				T.														.20	0.42
Emmett	Payette					T.		.19	.21	.65	.15		.15	.22									T.	.11							.14	1.82
Forney	Salmon												.43																		.35	0.78
Gilbert	Clearwater																																
Glenns Ferry	Snake		.04			.05		.09	.28	.59			.50											.04						.07		1.66
Grand Forks	Columbia								.04	.12	.12		1.20	.40													.09			.19	.47	2.63
Grandview	Snake																																
Grimes Pass	Boise		.05		.44	.14	.26	.20	.97	.84		.15	.54																				3.59
Guffey	Snake		T.			T.		.01	.90	.11			.21	.05						T.			T.	T.						T.	T.	1.28
Hailey	Wood-Malad			T.		.20	T.		.22	.95	T.		.10	T.								T.	T.							.11	.88	2.46
Henry	Snake																																
Hotspring	do	T.				T.		.03		.50			.12							T.			T.							T.		0.65
Idaho City	Boise					.36		.10	.20	1.73			.60																		.26	3.25
Idaho Falls	Snake		.25			.30			.29		.06					.04								.19		.02			.02			1.17
Indian Valley	do					.90	.25	.90	.10	.30		.40	.90											.65	.08					.81		5.29
Irwin	do																																
Kellogg	Columbia		.10					T.	.04	.26	.20	T.	.31	.37										T.			.17				.20		1.65
Kooskia	Clearwater		.30			T.		.01	.10	.30		.05	.35	.03	.07												.02				.30	1.43
Lake	Snake	.10							.10	.10		.10		T.		.20	.60															1.20
Lakeview	Columbia		.05						.10	.25	.05		.45													.15				.05		1.10
Landore	Snake		.03	.06		.22	.06	.04	.17	1.07		.07	.43	.24									.05	.01	T.	.04				.09	.52	3.10
Lardo	Payette																																
Lewiston	Clearwater		.16	T.		.03	.03	.04	.06	.23		.03	T.						.01							.01	T.			T.	.03	0.63
Little Camas	Boise			.03		.72		.40	.20	2.00	T.		.46	.07			T.	.01					.07	.07						.28	.10	4.41
Lost River	Lost River Region																																
Lowry	Owyhee																																
Mackay	Lost River Region							T.	T.			.16		.17																	.23	0.56
Meadows	Salmon					.09	.05	.15	.17	.35	.21	.14	.72	.03					T.	T.			.03	.04							.64	2.62
Milner	Snake	T.	.02	.02		.03	.02						.02					T.												T.	T.	0.11
Moscow	Columbia	T.	.22	T.		.10	.05	.06	.04	.32		.05	.52	T.					T.					T.		.05	T.				.06	1.47
Mountainhome	Snake					.01		.11	.26	.93			.39											T.						T.	.14	1.84
Murtaugh	do	.07	.02	.04	T.		.07	.08	.18	.06	T.			.33																		0.55
Nez Perce	Clearwater	.18					.19	.16					.22																			0.75
Oakley	Snake	.05		.10							.10		.03	.02			.05														.10	0.45
Orofino	Clearwater		.15			.04		.03	.08	.50	.02	.12	.25	.14												T.	.07				.14	1.54
Payette	Payette					.08		.29	.26	.30		T.	.38	T.						T.			.01	.02						T.	.18	1.52
Pebble	Snake	T.	.21		T.	.30		.10		.55	.14		.40	.29										.04	T.						.75	2.78
Pierson	Salmon		.40					.60	.40						T.															1.04	2.44
Pleasant Valley	Boise																																
Pocatello	Snake	.08	.19	T.	T.	.05	.01	T.	T.	.20			.02	.09		T.	T.	T.	T.	.01	T.			T.	.01			T.	T.	T.	.02	.21	0.89
Pocatello Nursery	do																																
Poplar	do		.31	T.	T.	.12	.14	.11	T.	.19	.10		T.	.05	T.	.11	.16	T.				T.					.15				.32	1.76
Poplars	Boise					*	*	*	*	.70			.22								*	*	*	.08							.13	1.13
Porthill	Columbia								.15	.25		.08	.57													.08		.02			.40	1.55
Pyle Creek	Payette		T.			.63	.07	.36	.64	1.55		T.	.73										T.		T.						.43	.10	4.21
Rupert	Snake	T.	.08	T.	T.	.15	.07	.06	.15	.28	T.		.24	T.			.03	T.	T.	T.				T.	T.					T.		.16	1.22
St. Maries	Columbia																																

TABLE 2.—*Daily precipitation for December, 1909. District No. 12*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Idaho—Cont'd.																																	
Salem	Snake					T.	.04	.08	.04	T.	T.	.02	.21	.19			T.			T.								T.				.27	0.85
Salmon	Salmon					T.	.08	.02	T.	T.			.26				T.	T.			.02			T.							T.	.10	0.59
Salmon River Dam	Snake	T.		.11		T.	.08	.02	T.	T.			.26												.14							.73	5.88
Sheep Hill	Boise						.73	.60	.45		2.65			.58																		.22	3.44
Silver City	Owyhee		.02		.13	.46	T.	.32	.85	.61	.01	T.	.26	.13						T.	.05	.05	.06	.01	T.	T.				.08	.18	.50	.25	3.55
Soldier	Wood-Malad			.15		1.00		.15	.20	1.00			.30																			.11	0.74
Standrod	Snake	T.	.24	.03		T.	.01	.07	T.		.03		.14	.07						T.	.02	T.									.50	.10	2.16
Sugar	...do	.05	.06		.10		.15	.10	.10	.10		.10	.20		T.	.05	T.	.20					.15	.10	T.			.10			.50	.10	2.16
Sunnyside	...do	T.			T.		.10	.10	.86	.03	T.		.27							T.	T.	.10	.10								.10	1.66
Tilden	...do																																
Twin Falls	...do	.03	.05	.07	.05	.05	.24	.11	.22	.28			.22	.04											.04						.09	.10	1.63
Vernon	...do	T.			T.	.10	.30	.05	.08	.20	.05	T.	.28	.05		T.			.01				T.	.10	.08			.10	.18		.45	2.03
Wallace	Columbia	T.	.08			T.		.04	.06	.47	.03	.07	.71	.26			T.	T.	T.					.02	T.	.05	.05				.20	.47	2.51
Warfield	Wood-Malad																																
Wendell	Snake																																
Washington.																									.05	.46					.56	.11	8.68
Aberdeen	Coast	.61			.05		.40	.01	.30	.90	.51	3.07	1.05																				
Anacortes	Puget Sound																									.30					.38	.40	6.90
Baker	...do		.05					.10	.62	.71	.56	1.01	2.19	.58												T.					T.	T.	2.02
Bellingham	...do	T.	.04								3.01	.45	.23													.05					.12		4.48
Blaine	...do	.16	.10					.03	.24	.37	.06	1.75	1.53	.07																		.43	4.78
Bremerton	...do	.08	.07					.21	.18	.46	.21	.66	* 2.02	.02											.05	.02					.84		4.30
Cedar River	...do	.12	.18					.02	.08	.04	.12	1.32	1.42	.09											T.	.55					.63		5.63
Centralia	Coast	.48	T.		.08		.20	.40	.53	.12	.82	1.09	.73																				
Chenoy	Spokane																																
Chopaka	Okanogan																									.11					.20		2.39
Clealum	Yakima	.11						.33	.30		.11	*	1.20	.03																			3.95
Clearbrook	Puget Sound	.17						.10	.26			.18	2.94	.30																			
Clearwater	Coast																																
Colfax	Palouse																									.10					.15		1.91
Colville	Volumbia			T.				.15	.20	.76		.15	.40												T.				T.				1.80
Conconully	Okanogan				.10	T.	T.	.42	.15	.46	.21	.35	.11																		.13		1.70
Coupeville	Puget Sound																																
Crescent	Spokane			.23					.26	.13	.44	.51												.03		T.							0.81
Davenport	Columbia				.02			.01	.04	.50		.06	.15														.11				.57		1.75
Dayton	...do		.25		T.	T.		.00	.10	.26		.18	.19																		.69		7.57
Detroit	...do	.11	.21					.84	.49	.08	.40	1.71	2.58													.46						.80	4.83
Dixie	Puget Sound		.70				.30	.40	.14	.35	.54	.25	.10	.70	.40									T.	T.		.15						9.91
Duckabush	Columbia				T.	T.	.05	*	2.08	1.54	.32	2.23	2.62													.03				1.04			
East Sound	Puget Sound																																1.08
Ellensburg	...do																							T.	T.	.21					T.		
Ephrata	Yakima		.08					.17	.36				.26																				
Forks	Columbia																																
Fort Simcoe	Coast																									.15						.30	2.12
Goat Lake	Yakima		.12		.20	.15		.40	.20			.60																			.32	1.23	8.70
Gold Creek	Puget Sound	.80	.40						.10	.20	.60		2.30	2.75												.15					.60		1.95
Goldendale	Yakima	.05			.10		*	*	.75				.30													.20	.10				T.		3.35
Granite Falls	Columbia	.05	.15		.10	.20	.30	.70			1.05													.30		.20	.01				.56	.03	4.16
Hatton	Puget Sound	.25	.05					T.	.15	.24	.04	.50	1.56	.41	T.											.36					.01		6.90
Huntsville	Columbia	.34						.15		.33		.04				T.	T.						T.	T.		.03					.05	.47	1.98
Irene Mountain	...do		.26			.15		.44		.12		.14	.30													.05							0.64
Kennewick	...do							.01	.05	.43		.06														.07						.03	0.93
Kettle Falls	...do		.30						.40			.10				T.			T.					T.			.10			.18	.03		1.58
Kiona	Yakima		.07		T.			T.	.40	.46		.18														.06						.20	1.31
Kosmos	Columbia	.30	.12		.10		.10	.30	.31	.28	.30	1.20	.90	.07												.20					.94	.08	5.20
La Center	...do	.17			.18		.18	.03	.83	.15	.01	1.43	.58												.02						.83	T.	4.41
La Crosse	Palouse		.65			.20	T.	.05	.12	.33		.10	.27				.07	T.	T.				T.	.01	.01	.01		T.	T.	T.	T.	.40	2.22
Lake Clealum	Yakima	.25	.18				T.	.24	.33	.14	.16	.62	.46	.34												.21					.82	T.	3.75
Lake Kachess	...do	.30	.20					.50	.60	.30	.40	.80	1.85	.66												.20					1.00	.10	6.91
Lake Keechelus	...do	.70	.30					.50	.40	.40	.90	.70	1.80																.60	1.00			7.30
Lakeside	Columbia		.01					.12	.31	.34		.55	.04											T.	T.	.06					.18		1.61
Laurel	...do	.07			.05	.05	.09	.57	.82	.44	.09	1.07	.80													.30					.70		5.05
Lester	Puget Sound	.15	.55							.15	.20	.40	1.65	.25												T.					.35		3.70
Lone Tree	Coast	.21	.12		.10			.40	.50	.64	.12	2.68	1.87												.06	.30					.14	.05	7.19
Longmires Springs	Puget Sound	.53	.24	T.			.20	.35		T.	.60	.25	.80	.18											.30					1.65		5.10
Lost Creek	Columbia							.12	.18	.51		.09																			.10	.10	1.10
Lucerne	...do																																
Lyle, (Pine Hill)	...do						.10	.20	1.00	.30		.90														.21							2.71
McCumbers Ranch	...do																									T.					.19		0.93
Mottingers	...do		.09			.12		.05	.28			.20														T.					.60	.20	3.76
Mount Pleasant	...do	.25	.05	.01	T.					T.		.90	1.45	.30																		.03	0.85
Moxee	Yakima							T.	.34	.16		.04													.13	.13			.02			.03	0.85
North Head	Coast	.17	.02		.06		.15	.37	.85	.30	.28	2.20	.35																		.20	.13	5.24
Northport	Columbia	T.							.10	.42		.02	.22												.10	.21		.07			T.		1.14
North Yakima	Yakima	T.	T.		T.	T.	T.	.03	.39	.15		.24				T.		T.						T.	T.	.06					.06		0.93
Nutland	Columbia					.17		.23	.30			.40														.27					.07	.12	1.56
Odessa	...do					T.		.10	.20	.09		.30				T.							T.		T.	.10	T.		T.	T.	T.		0.79
Olga	Puget Sound	.10	.20						.10			.87	1.20																			T.	2.47
Olympia	...do	.15	.02			.04		.45	.30	.30	.65	1.14	2.08	.10												.28					.77	.02	6.30
Omak	Okanogan							.15	.05	.50	.10	.10	.30												.07	.10	.05		T.			T.		1.42
Oroville	...do							.05	.25	.05		.20																					0.55
Peola	Snake		.16		T.	.06		T.	.05	.11		.12	.54		*	*	*	.13													.01	.12	1.30
Pomeroy	...do		.30			.10		.10	.50	.25		.10	T.														.10				.10		1.55
Port Crescent	Coast	.02	.04			T.	.01	.08	.15	.81	.62	1.97	.42													.21	.02	T.			.28	.20	4.83
Port Townsend	Puget Sound	.10	.14					.23	.38	.15		.19	.43	.18												.13					T.		1.93
Pullman	Palouse		*	*			.85	T.	.28		T.		.67				.02		T.	.01													1.83
Quinlault	Coast	.65						.63	1.30	1.04	1.00	5.00	4.00	.03				.02	.01							.55	.02			.02	.60	.21	15.08
Republic	Columbia							.09	.10	.56		.09	.05											T.		.09					.08		1.06
Rex Creek	...do																																
Ritzville	...do		.02			.02	.28	.31	.08	.01		.34					.02						.02	.14	.06						.03		1.33
Rock Lake	Palouse		T.			T.		.02	.05	.72		.43																					1.22
Rosalia	...do		.70	.02				T.	.26	.39		.13	.26											.03	.04	.04					.05	.18	2.10
Russells Ranch	Yakima																									.10	.18				.61		2.69
Seattle (1)	Puget Sound	.09	T.				.01	.04	.19	.01	.01	1.08	.36	.01												.34					.70	.08	3.25
Seattle (2)	...do	.06	.17					.02	.03	.25	.05	.35	1.20													.12					.14	.21	4.75
Sedro-Woolley	...do	.30							.20		.04	1.22	2.00	.48	.03	.01															.05	.05	0.82
Sixprong	Columbia			T.	T.	.02		.10	.31	.04		.08	.02					.01						.01		.13	T.				1.17	.47	7.41
Skagit Power Dam	Puget Sound	.55	.12					.05	.08	.41	.22	1.34	2.70	.10												.36	.05				.75	.09	3.19
Snohomish	...do	.06	.02					.10	.16	.16	.04	.17	.75	.47	.01											.02	.01				1.04	.02	4.68
Snoqualmie	...do	.36	.12						.07	.23	.37	.39	1.96	.05		.01	.01	.01	.01							T.		T.			.15		2.25
Snyders Ranch	Columbia	T.	.10		T.	.11	.05	.19	.40	.24		.61	.40																				
South Bend	Coast																		T.	T.				T.		.06			T.	T.	.19	.04	1.56
Spokane	Spokane	T.		.06		T.		.14	.23	.46	T.	.21	.17																				
Stehekin	Columbia																																

TABLE 2.—*Daily precipitation for December, 1909. District No. 12*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Washington—Cont'd.																																	
Stokes Ranch	....do				.06			.20	.30	.33		.53	.63																		.25		2.30
Sullivan Lake	Pend Oreille																																
Sumner	Puget Sound	.17	.32					.03	.18	.14	.27	.79	.69													.29					.66		3.54
Sunnyside	Yakima	.05	T.		T.			.18	.40			.07										T.				.11							0.81
Tacoma	Puget Sound	.54	.62				.07	.06	.31	.13	.09	1.29	.87												.07	.22					.68	T.	4.95
Tatoosh Island	Coast	.03				T.	T.	.78	.57	.36	.34	3.05	.36											.15	.48	.20					.30	.15	6.77
Tieton	Yakima		.02		.04	.95		.61	.84		T.	.54	.01							T.					.02	.04					.39		3.46
Touchet	Columbia	.28				.28		.20		.40		.09	T.				T.						T.	T.	T.	T.	T.				T.	.19	1.44
Touchet Ridge	....do	.80	.60			.20			.25	.30	.25	.75																		1.02		4.07
Trinidad	....do					T.	.50	.20				.20													T.	.10					T.		1.00
Twisp	....do																																
Tyee	....do						*	*	*	.87		*	1.71													.08				*	*	.74	3.40
Vancouver	....do	.16			.08	.16	.02	.44	.72	.32	T.	1.27	.53													.16					.64	.02	4.52
Vashon Island	Puget Sound	.08	.11	T.				.04	.24	.07	.12	1.10	1.53	T.												.36	.01				.63	T.	4.29
Wahluke	Columbia					.20	.10																										0.30
Wallace	Okanogan							.60	T.	.35		.43								.05								T.					1.43
Walla Walla	Columbia	.09	.43		.03	.21	.19	T.	.14	.19	T.	.20	.12							.01			T.	.01	T.	T.	T.				.17	.28	2.07
Waterville	....do				T.	.05		.60	.35	.30		.55												.05	.05	.10					.10		2.15
Wenatchee (near)	....do				T.	.25	T.	.27	.43	.20		.23	.03											T.	.01	.10					.09		1.61
West Branch	Spokane																																
Wilbur	Columbia			.05				T.	.65	.40			T.											.10						T.	T.		1.20
Yale	....do	.55	.20	.05	.17			.15	.15	.80	.60	2.30	1.05												T.	.20				.10	.25		6.57
Zindel	Snake													.03	T.	.15	.30														.05	0.53
Oregon.																																	
Albee	John Day																																
Albany	Willamette		.10			1.10		.30	.40	.88	.05	.54	.60	.02												.24					.12	.40	4.96
Ashland	Rogue	.01	.03	T.	.21	.12	.01	.25	.06	.29	.04	.07	.10	T.												T.					.26	.53	1.98
Astoria	Columbia																																
Baker City	Snake	T.	T.		.13	.07	.30	.07	.17	.02		.13	.40						T.	.02	T.	T.	.01		T.	T.					.01	.31	1.64
Bay City	Coast	.62	.34	.02	.12		.01	.35	.75	1.15	.62	1.58	.98	1.10												.46					1.10	.44	9.64
Bear Creek	Deschutes				.33		.10		.29			.31														.24						.08	1.35
Beaver Creek	....do																																
Bellfountain	Willamette	.13	.10		1.00	.69	.34	.49	.80	.66	.15	.46	.49	.02												.57					.72	.08	6.70
Bend	Deschutes																																
Big Basin	John Day		T.		.20	.20			.50			.20	.30						T.														1.40
Birch Creek	....do	T.	T.	T.	.25	T.		.80	.29	.21		.50	T.												T.						T.		2.05
Black Butte	Willamette			.05	.90	1.00	.25	.25	1.40			.25	.30	.10	T.															.40	1.25		6.15
Blalock	Columbia									.68		.35																				.11	1.34
Blue Mount Sawmill	Umatilla		1.13	1.32		.24	.05	.34	.13	.35	.07	.50	.56	.40												.07					.04	.50	4.30
Buckhorn Farm	Rogue River																																
Butte Falls	....do	.01	.05	T.	.03	.76	.04	.45	.03	.48	.06	.71	.30	.02												1.52					.69	.17	5.32
Cableville	Snake																																
California Gulch	Umatilla		.48	.20		.20	.10		.65			.30																			.48	2.41
Canyon City	John Day		.06			.11	.10		.20	.32		.25	.10	.03						T.			T.		T.	.02					.12	.07	1.38
Cascade Locks	Columbia	.58	.09		T.	.10	.07	.05	.05	.10	.06	1.18	.71	.03											T.	.10					.72	.41	4.25
Cascadia	Willamette	.14	.21		.18	.25	.16	.32	.28	.52		1.02	.39	.20												.26					.62	.78	5.33
Cazadero	....do	.19	.06		.09	.05	.02	.40	.20	.41		1.10	1.01	.05												.06					.81	.64	5.09
Columbia Mine	Snake		.45		.10	1.20		.70	.80	.62		.55	.65	.05								.10			.16	.10					T.	.60	6.09
Condon	John Day																																
Coquille River L. H.	Coast		.15		.71	.09	.60	.20	1.07	.70	.20	.05	.90												.12						.82	.51	6.12
Cornucopia	Snake			.02		.59	.05	.58	.95	1.04		.39	1.02	.03									.03	T.	T.	.08						.15	.38	5.31
Corvallis	Willamette																																
Cracker Creek	Snake		.30		.10	1.00	T.	.50	.70	.50		.60	.50							T.		T.	T.		.20						T.	.40	5.00
Crescent	Deschutes																																
Dayville	John Day	T.	T.		T.	.08		.06	.42	.25		.14	.02							T.											T.	.12	1.09
Doraville	Columbia	.12	.03		.11	.19	.02	.35	.43	.37	.44	1.56	.85	.08											.05	.15	T.				.97	.23	5.95
Drain	Umpqua	.10	.04		.60	.26		.42	1.02	.08	.47		.45													.37					.62	.25	4.68
Duncan	Umatilla		.25	.30	.45	.50	.50	.40	.38		.50			1.20																			4.48
Echo	....do		.17			.30			.26	.08		.18											T.									.21	1.20
Elkhorn Ranch	Coast	.06	.51		.90	.71	.35	1.33	.79	1.65	.32	.79	1.43	.12												.82	.02				1.92	.60	12.32
Ella	Columbia		.05				.50	.20	.30	.16		.10															.10						1.31
Embody	Deschutes				.30	.60		.10																									1.00
Eugene	Willamette		.11			.27		.64	.24	.78	.01	.39	.35	.01												.05	.07				.10	.58	3.60
Eugene (River sta'n)	....do		.14			.54		.40	.24	.74	.06	.34	.48	.06												.24	.04				.04	.50	3.82
Fairview (1)	Coast	.28	.34	T.	.98	.38	.52	.46	.93	1.35	.23	.66	.80													.21				1.03	.17		8.34
Fairview (2)	Snake		.30		.10	.60		.90	.60			1.20	.40										1.0	T.		T.						.20	4.40
Falls City	Willamette																																
Fir Glen	Coast	.15	.26		.56	.73	.22	.49	.36	1.25	.27	.67	.72	.04												.19					1.17	.40	7.50
Florence	....do	.16	.16		1.06	.20	.18	.77	1.45	.48	.16	.82	.97	.04												.27					.82	.30	7.84
Forest Grove	Willamette	.08		.30	.10	.20	.05			1.30	.30	1.42	.92												.15	.15						.11	5.08
Galice	Rogue	.02	.05		.80	.23	.98	.75	1.05	1.20	.29	.14	.62													1.04					.95	.17	8.29
Gardiner	Umpqua	.06	.44		.90	.29	.23	.94	1.40	.92	.30	.48	1.05	.15						.04											1.02	.20	8.42
Glendale	....do		.10		.10	T.	.20	.40	.60	.30	.20	.40	.60	T.											T.		T.				T.		2.90
Glenora	Coast	.50	1.72	.31	.28	.79	.37	1.31	1.52	.81	.60	.39	.60												.40						2.40	.70	12.68
Gold Beach	Rogue	.02	.24		1.10	.57	.68	.70	1.08	1.30	.10		1.30	.18												.64					2.09	.76	10.76
Granite	John Day		.20	T.	T.	.05	T.		.35	.22		.60	.10							T.		T.			T.						T.	.56	2.28
Grants Pass	Rogue	.01	.01		.88	.04	.12	1.03	.38	1.21	.21	.08	.22	.02	.01	T.	.01	.01							T.	.20	.01		.01		.28	.27	5.01
Grass Valley	John Day								1.06			.08																					1.14
Greenleaf	Coast	.19	.24		.72	.63	.41	1.25	.63	1.41	.46	1.47	1.57	.04												.91	.01				1.00	.46	11.40
Happy Home	Umpqua	1.10	2.04	.48	.92	.84	.21	1.94	2.14	1.75	2.49	.92	.14		.98	.54										.84	.55				1.00		18.88
Hazeldell	Willamette	.05	T.		.40		.15	.22	.60	.10	.38	.52	.18												.18	T.					1.14		3.92
Headworks	....do	.32	.44		.19	.15	.15	.70	.28	.24	.03	1.43	.66	.08												T.	.38					1.03	.56	6.64
Heppner	Columbia																																
Hermiston	Umatilla		.04			.25		.20	.10	.10		.19	.02		T.	T.									T.	.03							0.93
Hilgard	Grande Ronde			.20	.15				.10		.65	T.																			.20		1.30
Hood River	Columbia					.25	.01				T.		1.00												.05	.15					.40		1.86
Howardville Station	Grande Ronde		.03			.31		.41	.40	.12		.68	.46	.03						.03				T.	.02						.02	.18	2.69
Huntington	Snake					.20		.50	.30	.04			.40									.25									.10		1.79
Ibex Mine	John Day	T.	.70	T.	T.	.55	.03	.75	.30	.98	T.	.60	.55	.03						T.	.10	.20	.20	T.	T.	.09					.03	.37	5.48
Ironside	Snake																																
Jacksonville	Rogue				.50	.40	.20	.38	.13	.86	.05	.09	.17																		.28	.52	3.58
Joseph	Grande Ronde	.10	.10	.20		.30	.60	.20	.10	.20	.10		.20	.08																			2.18
Kamela	....do			.30	.20	.05	.10	.05	.05		.05	1.10	.40																				2.30
Keeps Mill	Deschutes																																
La Grande	Grande Ronde	T.				.05	.12	.30		.03		.24	.27																			.15	1.16
Lilyglen	Rogue	.15	.16	T.	.12	.37	.13	.44	.16	.44	.03	.19	.20	T.												.04					.34	.77	3.54
Long Creek	John Day							.30	.25	.50	.20		.30																				1.55
Madras	Deschutes			.20	.20	.20			.40	.40	.40											.10			.10	.10					.10	.20	2.40
Maury	....do		.04		.42		.62	.28	.21	T.		.02	.15	T.												.01							1.75
McKinzie Bridge	Willamette	.06	.38			.53		.57	.35	.57	.05	1.03	.80	.11												.23	.03				.81	.75	6.27
McKay	Umatilla																																
McMinnville	Willamette	.04	T.		.50	.19	.23	.49	1.03	.42	.13	1.38	.72												T.	.16					.90	.08	6.27
Meacham	Umatilla		.91	.48					.20	.11		.49																					2.19
Mikkalo	John Day		T.		.05	.88		.18				.80														.21					.18		2.30

TABLE 2.—*Daily precipitation for December, 1909. District No. 12*—Continued.

Stations.	River basins.	Day of month.																													Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oregon—Cont'd.																																	
Miramonte Farm	Willamette	.03	T.		.20	.20	.15	.63	.40	.40	.02	.99	.55	T.												.19					.54	.01	4.31
Monroe	do	.07	.16		1.10	.40	.30		1.95	.80		.50	.20													.10					1.60	.09	6.51
Mountain Home	Columbia	.30	.22		.08	.15	.14	.52	.48	.18	.23	1.72	1.08	.11												.21					1.12	.28	6.82
Mount Angel	Willamette				.44	.01	.11	1.04	.40	.70		.90	.68	.07												.01	.26				.66	.35	5.63
Mount Hood	Columbia	.15			.55	.11	.70	.09	.62		T.	1.66	.24												.09	.25				.53		4.99
Mountain Park	do	.12	.11		.20	.15	.15	.95	.45	.12	.20	1.35	1.10												.09	.30				.87	.15	6.31
Mountain Ranch	Rogue																														
Musick	Umpqua	.19	.65	.08	.38	.75	.44	.19	1.10	.60	.18	.40	.80	.14												.72					1.14	7.76
Newport	Coast	.18	.15					.57	.50		.30	.47	1.10	.14												.14					.70	.17	4.42
Nigger Flat	Malheur																														
Ochoco	Deschutes	T.		.15	.18	.12	.18	.10	T.	.35	.20	.30													T.	.10					.52	2.20
Ochoco Creek	do		.10		.10	.15	.24		.22	.15		.37	.60												T.	.18					.45	2.56
Owyhee	Owyhee							.12	.30	.34			.22												.08					.15		1.21
Pendleton	Umatilla		.17			.20		.10	.05	.30		.70	.03				T.			T.			T.							.03	.33	1.91
Persist	Rogue		.21		.40	.84	.13	.27	.24	.88	.08	.83	.22	.04												.52					.38	.37	5.41
Pilot Rock	Umatilla		.07			.09		.04	.11	.23		.31	.04				.04			.05	T.			T.	T.							0.98
Pompeii	Willamette	.37	.75		.20	.10	.12	.31	.48	T.	.60	1.27	1.98	.27						T.					T.	.36					.62	.80	8.30
Portland	do	.09	T.		.31	.05	.23	.40	.78	.12	T.	1.05	.50												T.	.02					.92		4.47
Port Orford	Coast	.10	.20		1.10	.20	1.10	.40	2.30			.70	1.00	.25												.40	.10				2.00	.20	10.05
Post	Deschutes		.04		.11		.15		.17	.18		.05	.04													.07						.10	0.91
Power House	Walla Walla	T.	.57			.27		.06	.18	.32		.23	.03	.15		.05	T.			T.			T.								T.	.30	2.16
Prineville	Deschutes																																
Prospect	Rogue	T.	.17	.15	.32	.05	.10	T.	.05	.20	.82	.35														.40					.05	1.30	3.96
Range	John Day		.10	T.	.20		.20	T.	T.		.60									T.												.10	1.20
Ray Creek	Columbia		.10			.25		.13	.24	.20																					.30		1.22
Reston	Umpqua	.06	.21	.01	.47	.71	.25	.47	.23	1.10	.28	.75	.37	.03						.03						.18					1.02	.30	6.47
Richland	Snake					.50		.45		.31		.20	.15																				1.61
Riverdale Ranch	Deschutes																																
Riverside	Malheur					.40	.20	.40	.20	.08		.20										.05	.05										1.58
Rock Creek	Willamette	.12	.26	T.	.72	1.04	.63	.82	.86	1.53		1.11	1.26													.62					1.11		10.08
Roseburg	Umpqua	.06	.09		.62	.04	.19	.10	.62	.20	.02	.32	.27	.02						.01					.01	.05				T.	1.06		3.68
Rosland	Deschutes		.15		.44	T.	.70	T.	.33			.25	.45							.16	.24		T.			.13					.28	T.	3.13
Salem	Willamette	.10			.60	.48	.40	.58	.38	.46	.04	.48	.34	.01												.34					.43	.16	4.80
Seneca	Interior		T.		.05	.12	T.	.22	.27	.21		.30	.18							T.						.14					.06		1.55
Siskiyou	Rogue	.02	.05	T.	.29	.62	.32	1.45	.12	.46	.02	.10	.17	T.											T.	.13					.33	.56	4.64
Sisters	Deschutes		.09					1.55	.49			.04	.24	.05									.20			.09					.55	.05	3.35
Skyland	Willamette																																
Sparta	Snake	T.	T.		.40	.30	.20	.60	.70	T.	.30	.50	1.10										T.	T.							.20	.30	4.60
Stafford	Willamette	.09	.04		.10	.30	.20	1.67	.38	.45	.02	1.09	.93	T.												.13					.62	.06	5.48
Starkey	Grande Ronde		.30						.20			.50																			.01	1.01
Summit	Willamette	.20	.22		.45	.20	.11	.23	.86	1.01	.25	1.30	1.28	.05												.23					.78	.07	7.23
Summit Prairie	Deschutes		.06		.32	.23	.29	.10	.59			.64	.23							.04				.01		.29							2.80
Susanville	John Day		.19	T.	T.	.14		.14	.11	.20		.08	.20										.02	.04	.03	.03					T.	.20	1.38
Telocaset	Snake																																
The Dalles	Columbia	.06			.05	.35		.99	.53	.05		.53	.22							.01						.20					.10		3.09
Tin Roof Cabin	Umatilla		.90			.20	.20		.99			.40	.05							.15												.20	3.09
Toledo	Coast	.30	.20		.30		.20	1.10	1.10	1.00	.40	.70	1.30																		1.10	.30	8.00
Trask	do	.36					.85	.93		1.32	1.60	1.40	3.33													.36					2.50	.28	12.93
Umatilla	Columbia		.01		.21	T.	.09	T.	.44			.20								T.						.09					.10		1.14
Unity	Snake		T.			.35		.40	.40	.18		.50	.40							.10			T.		20							.30	2.83
Vale	Malheur					.02		.17	.30	.33		.04	.37					.04		T.			.03									.15	1.45
Van	do					1.00		.20		.35		.17														.18							1.90
Wallace Orchard	Willamette	.14			.66	.34	.34	.31	.56	.40	.06	.49	.53													.33					.50	.15	4.81
Wallowa	Grande Ronde			T.	.02	.21		.21	.19	.08		.33	.24	.05						T.					T.	.03						.06	1.42
Walloupa	do		.09		T.	.23	.01	.24	.24	.20		.23	.48	.05																		.15	1.82
Wamic	Deschutes				.16	.74				.40	.15														.30								1.69
Warmsprings	do					.50	.65	.25	.35																	.18					T.		1.93
Wasco	Columbia	.10	.08			.40	.45	.15	.40			.30	.05													.20					.07		2.20
Welches	Umatilla																																
Wenaha Springs	do																																
Weston	Walla Walla	T.	.55			.50	.21	.10	.15	.25		.10	.55	.02																		.40	2.83
Willamina	Willamette																																
Williams	Rogue	T.	T.		.10	.20	.14	2.22	.14	.65	.26	.03	.24																		.24	.70	4.92

TABLE 3.—*Maximum and minimum temperatures at selected stations for December, 1909. District No. 12, Columbia Valley.*

Date.	Montana				Wyoming		Idaho																			
	Kalispell.		Missoula.		Afton, Wyo.		Boise.		Bonners Ferry.		Hotspring.		Lewiston.		Mackay.		Meadows.		Pocatello.		Salmon.		Shoshone.		Vernon.		Wallace.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	34	19	34	25	36	10	40	30	38	26	47	30	46	29	35	13	42	22	38	28	39	19	38	25	35	17	35	25
2...	27	16	29	17	24	− 2	34	26	35	20	40	27	35	31	26	11	31	17	34	16	32	21	35	23	32	10	32	22
3...	20	10	20	12	16	− 7	32	21	34	22	34	22	31	23	15	9	18	12	16	− 4	26	11	27	15	17	−10	24	16
4...	22	6	17	6	12	4	31	18	32	1	34	16	30	20	18	− 4	22	9	19	− 2	17	0	22	13	8	− 8	18	9
5...	15	5	12	9	20	3	35	24	24	9	37	23	31	26	16	2	29	19	29	19	22	5	26	15	21	1	19	16
6...	12	0	11	2	22	3	33	12	20	3	30	21	28	21	25	6	22	6	25	12	24	0	25	12	19	7	19	11
7...	13	1	14	5	23	4	38	28	27	9	35	23	38	27	24	2	28	13	32	20	31	5	27	12	23	1	20	12
8...	21	12	21	12	37	17	49	30	28	22	38	31	39	27	31	9	35	25	39	23	31	19	36	25	31	21	33	19
9...	31	13	31	19	38	30	49	32	32	20	48	31	40	31	25	15	37	32	40	30	39	24	36	31	35	27	34	29
10...	37	22	38	25	37	14	49	29	35	27	47	30	38	30	23	13	33	16	30	24	37	23	33	17	35	13	36	28
11...	33	27	32	18	24	4	35	25	39	29	39	26	45	29	25	3	29	9	26	10	27	5	25	0	20	7	37	25
12...	40	29	38	28	24	4	39	31	36	26	.....	.....	55	30	25	11	33	25	35	25	31	22	28	17	24	13	39	32
13...	41	30	38	34	32	12	32	26	30	28	45	30	47	33	34	11	32	26	35	23	33	13	29	19	26	20	36	33
13...	33	29	36	28	30	7	36	24	38	28	37	24	46	33	25	19	29	9	29	22	30	2	29	16	23	19	36	32
15...	32	27	33	25	16	−15	28	25	33	27	32	26	40	36	22	− 4	24	10	23	18	23	− 7	23	12	19	10	34	31
16...	35	22	35	25	23	−11	27	22	34	26	30	21	38	34	29	− 2	28	5	23	8	24	4	19	13	15	0	35	30
17...	26	23	30	23	10	−22	26	22	29	20	30	24	35	32	15	− 3	27	15	13	0	28	0	19	10	6	−17	32	28
18...	26	20	29	26	12	−28	27	23	32	18	28	22	34	31	20	− 5	22	14	16	2	23	− 4	17	12	13	−19	29	26
19...	25	9	32	22	13	−12	29	21	33	8	29	19	38	26	15	− 5	21	16	18	4	30	2	19	10	13	− 4	28	11
20...	22	4	28	16	10	−17	29	19	29	5	29	15	38	21	18	− 9	21	− 6	19	0	15	−14	22	10	18	−14	24	12
21...	18	− 2	23	6	11	−15	26	16	28	0	29	13	33	20	20	− 4	7	−15	22	3	11	−19	20	10	16	− 6	22	11
22...	16	2	21	2	14	−10	28	19	24	− 2	30	13	27	16	20	− 3	16	− 4	24	5	13	−18	22	2	20	− 4	21	7
23...	15	2	20	1	20	− 4	24	15	24	0	29	16	29	24	18	− 8	15	− 1	20	5	10	−17	20	4	20	1	18	6
24...	16	2	24	2	12	−11	25	15	23	6	28	10	34	24	28	− 9	21	0	21	2	11	−19	18	2	15	− 6	22	11
25...	16	2	21	9	24	−14	30	21	19	2	36	20	36	30	32	−11	29	16	26	2	21	− 7	27	13	21	− 7	30	19
26...	18	7	35	17	22	8	28	17	23	15	35	15	34	30	30	− 3	31	21	29	8	30	7	27	1	22	8	28	26
27...	22	8	37	14	26	12	31	14	24	17	33	16	34	25	28	0	22	4	27	15	29	1	23	12	19	− 2	27	18
28...	24	15	23	7	27	7	26	14	25	17	29	15	34	23	26	− 2	21	− 5	24	7	22	−11	24	14	20	0	29	11
29...	21	15	32	9	15	−18	29	17	30	20	30	24	43	23	22	− 3	23	6	28	1	20	− 9	23	5	19	−10	28	14
30...	38	10	35	11	23	−12	45	14	35	15	32	14	39	32	25	− 2	19	3	36	2	19	−10	29	8	21	− 6	41	21
31...	38	14	47	26	34	12	47	26	35	19	50	30	41	28	32	13	31	18	40	33	33	6	39	27	36	21	36	24
Mns	25.4	12.9	28.3	15.5	22.2	−1.5	33.1	21.8	30.2	15.6	35.0[a]	21.6[a]	37.3	27.5	24.1	1.9	25.7	10.9	27.0	11.6	25.2	1.7	26.0	13.1	21.4	2.7	29.1	19.8

Date.	Washington.																									
	Aberdeen.		Blaine.		Colville.		Kosmos.		Lakeside.		North Head.		North Yakima.		Odessa.		Port Crescent.		Seattle.		Sixprong.		Spokane.		Tacoma.		Tatoosh Island.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	41	33	43	36	30	25	34	33	36	32	44	38	45	25	40	26	41	32	41	35	45	29	38	28	40	33	43	38
2...	35	30	39	29	35	21	33	31	39	28	43	32	44	28	35	26	35	28	39	31	40	30	33	27	38	32	39	34
3...	36	25	30	24	35	18	36	19	29	11	43	30	35	20	31	15	33	22	32	27	35	24	27	16	33	24	34	31
4...	31	26	32	18	30	12	28	19	24	18	31	28	25	15	30	12	32	22	33	26	31	15	24	11	32	22	36	32
5...	36	26	36	20	24	11	34	24	28	22	40	26	28	23	24	13	34	27	36	30	27	19	23	17	33	29	36	32
6...	34	28	32	20	23	4	31	18	25	17	33	30	25	15	29	9	34	22	36	29	24	12	22	11	35	26	37	31
7...	41	28	36	27	22	10	33	25	23	20	44	30	28	20	23	13	42	30	40	32	24	20	22	17	40	32	44	32
8...	39	34	39	32	27	20	36	18	24	19	47	37	28	11	30	18	42	33	43	36	27	20	30	22	40	32	47	37
9...	41	33	47	35	30	23	56	31	35	23	45	42	31	22	40	24	45	32	48	39	39	20	33	22	47	37	47	38
10...	46	35	45	40	35	28	36	32	33	22	47	42	32	17	42	20	46	35	45	39	40	20	37	19	46	39	47	40
11...	50	38	46	36	35	31	38	32	31	26	49	41	35	17	40	21	45	36	50	40	36	24	38	19	56	37	50	40
12...	52	37	50	41	40	33	42	37	38	28	50	42	48	31	43	23	50	42	52	44	47	31	45	38	54	44	49	43
13...	41	31	46	41	38	32	43	35	34	22	46	34	44	23	45	25	46	31	45	41	46	34	38	32	46	40	45	40
14...	43	30	43	35	35	31	38	28	31	20	54	37	37	18	33	27	41	30	42	37	40	30	34	30	42	35	44	40
15...	45	29	38	32	36	30	48	27	28	20	52	36	26	17	33	28	43	34	39	35	32	28	33	28	38	35	46	40
16...	45	35	37	31	31	27	33	24	31	23	56	36	26	20	35	25	52	32	38	35	28	24	35	28	38	33	47	42
17...	44	32	35	28	34	27	33	23	28	24	52	36	28	24	36	27	40	32	36	32	29	25	31	27	36	30	46	38
18...	37	30	36	29	31	26	33	21	26	23	37	35	28	23	35	24	38	34	36	33	28	25	29	26	35	29	42	37
19...	43	30	38	30	32	20	31	27	28	21	45	31	34	25	33	21	44	29	41	31	33	26	34	24	41	31	45	39
20...	46	26	39	24	31	2	30	19	24	16	48	32	38	18	29	20	39	27	42	30	36	26	32	19	41	29	44	40
21...	41	21	37	21	22	− 2	30	21	22	13	44	30	31	12	27	14	40	26	43	27	27	16	28	12	43	26	41	36
22...	40	18	36	18	18	− 5	30	15	18	10	42	28	24	5	23	9	38	22	38	26	26	19	20	6	39	23	41	36
23...	34	20	32	20	12	− 6	30	14	15	9	36	31	22	8	24	12	37	27	35	25	25	19	22	14	34	19	39	33
24...	38	27	38	26	14	− 5	38	16	20	6	39	34	24	14	24	13	39	28	41	28	25	15	23	13	40	22	38	33
25...	37	32	35	30	24	7	38	32	28	16	40	35	32	22	31	18	37	33	37	33	27	20	25	22	37	33	40	35
26...	45	32	39	28	23	3	42	31	25	16	46	34	30	9	30	16	39	34	40	32	30	20	26	22	40	29	42	38
27...	37	32	34	20	23	11	33	20	24	17	47	34	24	6	30	15	38	32	35	31	26	14	27	22	35	29	40	37
28...	39	30	32	24	24	19	31	18	23	17	48	34	23	20	25	20	40	31	34	29	26	20	27	24	33	30	41	37
29...	40	28	31	23	24	20	32	20	23	18	52	36	23	18	30	17	41	31	42	28	24	19	28	18	40	27	48	38
30...	49	32	45	31	24	10	37	28	22	16	49	39	28	18	33	18	42	33	46	36	30	19	42	16	46	34	47	39
31...	38	28	38	24	34	17	37	27	25	16	40	31	35	16	34	23	42	30	40	33	38	26	36	22	40	32	42	34
Mns	40.8	29.5	38.2	28.2	28.5	16.1	35.6	24.7	27.1	19.0	44.8	34.2	31.0	18.1	32.2	19.1	40.5	30.2	40.2	32.6	32.0	22.2	30.4	21.0	39.9	30.7	42.8	36.8

TABLE 3.—*Maximum and minimum temperatures at selected stations for December, 1909. District No. 12*—Continued.

Date.	Walla Walla, Wash.		Oregon.																					
			Ashland.		Baker City.		Eugene.		Gold Beach.		Hermiston.		Marshfield.		Portland.		Prineville.		Roseburg.		The Dalles.		Vale.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	45	33	44	36	36	25	51	35	57	37	51	29	51	35	44	37	.....	22	44	33	45	28	47	21
2	34	19	37	30	30	21	46	33	48	35	39	29	47	34	41	33	.....	24	42	30	45	31	39	25
3	24	13	34	23	24	16	41	27	48	31	28	20	44	29	34	27	.....	13	35	26	39	25	35	20
4	17	8	35	23	23	11	38	26	58	29	26	13	43	30	30	24	.....	11	39	28	39	24	30	12
5	26	15	36	28	27	15	37	26	49	28	29	13	44	39	31	27	.....	4	40	31	31	22	33	25
6	19	9	37	22	23	0	34	24	50	31	25	− 4	41	31	32	25	.....	− 8	43	29	27	10	30	− 5
7	24	14	45	32	30	22	41	34	56	46	31	16	50	36	33	28	.....	9	47	40	30	22	31	20
8	37	21	54	33	37	22	42	33	58	44	31	16	57	42	36	32	.....	6	56	40	28	22	38	27
9	42	26	54	34	39	19	55	32	59	39	43	24	45	40	46	34	.....	30	46	34	31	17	45	36
10	42	37	38	31	29	12	44	37	58	38	42	14	51	35	48	41	.....	16	48	33	35	18	36	15
11	53	37	46	34	29	14	51	37	55	46	36	15	55	42	57	39	.....	16	53	38	38	24	37	14
12	55	43	50	36	33	28	56	44	58	49	52	37	54	52	58	42	.....	36	58	45	41	30	35	26
13	48	36	42	34	38	14	59	38	55	44	48	30	51	42	42	37	.....	21	47	39	44	32	35	22
14	37	28	55	30	32	12	42	34	64	35	37	23	55	36	49	33	.....	13	41	38	35	22	44	11
15	29	28	49	30	22	4	41	29	65	37	32	28	59	35	45	33	.....	11	39	33	35	23	31	5
16	28	27	57	28	24	8	40	27	67	43	32	25	57	36	46	32	.....	13	36	34	34	30	32	10
17	30	28	54	32	26	18	41	27	69	38	32	22	58	38	40	30	.....	11	36	33	33	29	26	20
18	29	28	46	28	20	13	42	26	66	30	32	27	47	28	38	26	.....	10	40	30	33	28	27	18
19	29	27	44	29	22	13	30	25	49	34	34	23	45	39	41	31	.....	19	38	31	33	29	27	20
20	29	24	42	30	23	− 2	35	22	51	30	33	20	49	29	44	30	.....	11	41	26	37	16	28	8
21	25	21	41	30	13	− 6	42	21	52	26	31	16	45	27	37	29	.....	12	36	22	29	11	23	− 2
22	25	21	39	25	21	0	38	18	48	21	29	24	46	24	36	26	.....	6	36	19	31	17	27	13
23	23	19	37	19	13	− 5	29	18	47	25	27	22	43	23	34	25	.....	− 1	32	23	29	21	25	10
24	24	20	46	28	24	9	31	18	55	36	34	27	49	30	34	29	.....	17	38	30	30	25	24	2
25	27	22	46	38	27	19	32	29	54	44	30	23	46	40	35	30	.....	20	39	35	32	25	31	12
26	29	25	53	30	27	8	33	30	58	34	35	26	53	33	40	32	.....	7	36	32	33	20	36	14
27	25	23	48	29	27	5	33	29	57	31	30	18	54	32	37	27	.....	7	35	32	31	19	29	1
28	25	24	57	27	21	0	32	26	53	31	32	25	55	29	33	26	.....	7	34	32	31	23	24	− 4
29	26	23	51	30	27	7	30	26	64	32	29	23	56	29	42	28	.....	5	45	30	30	26	28	21
30	53	21	51	35	30	11	47	27	60	45	32	21	52	33	50	30	.....	22	53	34	33	23	24	2
31	39	31	44	30	37	23	51	32	59	35	42	29	46	32	39	32	.....	20	41	29	41	26	35	19
Mean	31.9	24.2	45.5	29.8	26.9	11.5	40.8	28.4	56.4	35.9	34.3	21.4	49.9	34.2	40.4	30.8	.....	13.0	41.7	31.9	34.3	23.2	32.0	14.1

WEATHER, FORECASTS, AND WARNINGS FOR THE MONTH.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

Except on the Maine coast and in the neighborhood of San Luis Obisbo, Cal., the month was unusually cold in the United States and over a great portion of the interior of the country it was one of the coldest Decembers in the history of the Weather Bureau. The greatest deficiency in temperature occurred from the Ohio Valley westward to the middle Plateau, where the means for the month ranged from 5° to 12° below the normal. At points in the middle Rocky Mountain region minimum readings were as low or lower than previously recorded for December. Freezing temperatures were experienced over practically the entire South, parts of Florida, Texas, and the California coast being the only portions that were not visited by frost. In central and northern districts, from the Appalachian to the Rocky Mountains, minimum temperatures ranged from −3° to −20°, or lower, and in the higher levels of the Rockies temperatures of −30° to −47° were reported.

The month opened warm, but a cold wave that appeared on the 3d carried the means for the first decade 15° to 25° below the normal in the Great Plains and Rocky Mountain States. The means of the second decade were 3° to 15° below the normal, except on the extreme northeast and southeast coasts. During the closing days of the month there was a change to warmer weather, except in the Southeast, where the month ended with unusually low temperatures.

The precipitation of the month was deficient generally east of the Mississippi, marked excesses in this region being noted only from Maryland to southern New England, where rains and snows were comparatively heavy, and on the middle Gulf coast, where the excess was 2 to 4 inches. From the Mississippi westward to the Pacific precipitation was in excess in the southern Rocky Mountain district and Texas and from Montana over the North Pacific States. Over central and southern portions of California precipitation was heavy. From the middle and northern Rockies to the Lake region and along the Atlantic coast from northern Virginia to southern New England snowfall was unusually heavy. The snowfall in the Middle Atlantic States and southern New England attended a severe storm, elsewhere referred to, that moved over these districts during the 25th and 26th.

During the opening days of December destructive storms swept the British coasts and the North and Baltic seas. Over the western Atlantic Ocean a storm of varying intensity persisted until the evening of the 4th.

Over the North American Continent the month opened with high barometric pressure and low temperature over Alaska with a reported minimum temperature of −40° at Tanana. By the morning of the 3d the Alaskan high area had advanced over the British Northwest Territory and the northwestern portion of the United States attended by the first general cold wave of the season. On the morning of the 3d frost occurred in California, and on the following morning freezing temperatures were reported in the Great Valley of that State. Held back temporarily by an area of low barometer that covered the central valleys and Lake region the cold wave advanced over the Mississippi and Ohio valleys and the greater portion of the Lake region by the morning of the 8th, and on the morning of the 10th the line of freezing temperature extended into northern Florida. Owing to the persistence over the St. Lawrence Valley of a low area that had moved eastward from the Lake region the fall in temperature over the Middle Atlantic and New England States was not marked.

A disturbance that apparently advanced northeastward from the region of the Japan Sea during the last two days of November moved eastward over the Pacific to the United States coast by the 4th, and by the morning of the 6th an offshoot from this disturbance had passed southeastward over the southern Rocky Mountain districts. By the morning of the 7th this rapidly-moving depression had united with an area of low barometer, previously referred to, that had advanced over the central valleys from the Southwest. The passage of this low area was attended by heavy snow in portions of the Central West and Northwest and by destructive gales on the Great Lakes from the 5th to 8th, inclusive. From the 8th to 10th the center of disturbance passed eastward over the St. Lawrence Valley and Canadian Maritime Provinces and apparently moved thence southeastward toward the Azores, where the barometer fell to 29.54 inches on the 14th, to 29.08 on the 15th, and to 28.88 on the 16th. From the region of the Azores the disturbance moved northeastward to the west-central European coast by the 17th and reached the south coast of the North Sea on the 18th. Remaining nearly stationary over and near the North Sea until the 20th the storm passed thence over European Russia toward the White Sea and Arctic Ocean. It appears probable that this storm preserved its identity in a 3-weeks' course that carried it over the Pacific Ocean, the North American Continent, the Atlantic Ocean, and the Continent of Europe.

Over Siberia and the extreme British Northwest Territory barometric pressure continued high during the first decade of the month. On the 7th a reading of 31.18 inches was reported at Irkutsk, Siberia, and on the 6th a barometer reading of 31.28 inches was noted at Dawson, B. A., and a minimum temperature of −48° occurred at Eagle, Alaska.

From the 8th to 16th pressure was low over Alaska, and on the morning of the 9th a depression from that region occupied the north Pacific coast with pressure 29.22 inches at Tatoosh. Moving southeastward to the Mississippi Valley by the 12th this depression united with an extensive disturbance that had advanced from Alaska over the British Northwest. Moving eastward the united storms caused severe gales on the Great Lakes on the 13th and 14th that extended thence eastward over the middle Atlantic and New England coasts.

From the 4th to 12th gales were practically continuous on the north Pacific coast of the United States. Excessive rains on the 8th and 9th resulted in moderate floods in the Sacramento River, Cal. In the Gulf States rains occurred as each low area turned to the northeastward over that region. In the Atlantic States and lower Lake region there was no precipitation of consequence until the 7th. The storm of the 13th brought rains that ended a drought that had prevailed for several months in the Middle Atlantic States and North Carolina and from North Carolina over southern New England the rainfall ranged from 1 inch to more than 3 inches.

The morning of the 14th a pronounced high area appeared on the north Pacific coast south of the disturbance that had persisted over Alaska. The high area extended over the central valleys and the Southwest by the 17th and was followed by a moderate disturbance that appeared on the 15th over the Canadian Northwest and moved southeastward to the upper Lakes, where its identity was lost in a general low pressure area over Ontario on the 17th. Snow from this disturbance extended from the Lake region over Montana. An offshoot from a disturbance that appeared in the Southwest on the 16th reached the mouth of the Mississippi River on the morning of the 18th and passed off the southeast Florida coast on the 20th. The southern disturbances with high pressure to the northward caused general snows in the Rocky Mountain region and the Southwest and rain, sleet, and snow in the Gulf States. The rains and snows reached the South Atlantic States on the 18th and continued until the 20th.

From the 14th to 23d low temperature continued with brief

intermissions over the western half of the country with a minimum of −30° at Lander, Wyo., on the 18th. The cold wave extended over the Ohio Valley on the 17th and 18th, the Gulf States on the 18th, and the Atlantic States on the 19th and 20th. In the interior of the Gulf States there were 5 successive days of freezing temperature and on the middle Gulf coast and the interior of northern Florida freezing weather occurred on 3 consecutive days.

During this period of low temperature and high barometric pressure over the United States the barometer continued low over Alaska and an abnormal depression, previously referred to, persisted over the Azores region from the 13th to 17th and moved thence over Europe. Over Siberia pressure was variable until the 20th, when another high area appeared and continued until the 24th.

On the 19th another Pacific disturbance moved over California, attended by general rains in that State and by snow over the middle and southern Plateau districts. By the morning of the 21st the depression had moved to southwestern Arizona and snow was falling over the central Rocky Mountain region. Snow continued in that region until the 24th. On the latter date the center of the depression reached the Texas Panhandle and snow, sleet, and rain extended from the Southwest over the Mississippi and Missouri valleys. Increasing in intensity the disturbance moved rapidly over the Ohio Valley and the Middle Atlantic States and reached the New Jersey coast the evening of the 25th, with snow and rain over the entire eastern half of the country and heavy snow on the northern side of the storm's track. By the morning of the 26th the barometer was below 29.00 inches on the coast from New Jersey to Massachusetts and read 29.40 inches at Hamilton, Bermuda. High winds prevailed along the entire Atlantic coast and from New York City to Nantucket, Mass., severe gales were experienced. The winds moderated during the 26th but heavy snow continued over eastern New England. This was the severest storm of the month, and from Delaware northward high winds and heavy drifting snow caused a practical suspension of railway traffic. The greatest depth of snow, 22.8 inches, was reported at Philadelphia. At New York City the depth was 10.1 inches and at Boston, Mass., 12.3 inches of snow fell. Many small vessels were wrecked along the middle and north Atlantic coasts. An added feature of destruction was an exceptionally high tide on the New England coast on the 25th that rose 4 feet above normal high tide in Boston Harbor. The rise in barometer and fall in temperature following this storm were comparatively slight. Freezing temperatures again occurred, however, on the 26th in the Gulf and South Atlantic States.

By the evening of the 26th pressure was falling rapidly over the interior east of the Rocky Mountains and continued low until the evening of the 28th, with light snows in northern districts. Over districts west of the Rockies pressure was continuously high from the 23d to 29th, with fair weather and comparatively low temperature. An area of low barometer that appeared over Alberta the evening of the 28th moved southward, and on the 29th the Plateau high area began to lose strength.

On the morning of the 29th pressure was high over the Plains States and Mississippi Valley, a cold wave had extended into Tennessee, and winter temperatures prevailed throughout the country, except in Montana and on the Pacific coast. During the 30th the cold wave extended over the East and Southeast and carried the line of freezing temperature almost to the southern extremity of the Florida Peninsula.

On the 27th announcement was made that a storm would appear on the Pacific coast on the 31st. This storm advanced over the country during the first 5 days of January, preceded by a cold wave and attended by heavy precipitation in the form of rain, sleet, and snow.

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England	12	27.7	− 1.7	+ 3.9	+ 0.3
Middle Atlantic	15	31.2	− 3.8	+ 5.4	+ 0.4
South Atlantic	10	43.1	− 4.1	+ 8.5	+ 0.7
Florida Peninsula*	8	57.9	− 2.8	+14.5	+ 1.2
East Gulf	11	44.1	− 5.0	+16.0	+ 1.3
West Gulf	10	42.2	− 6.4	+19.5	+ 1.6
Ohio Valley and Tennessee	13	29.9	− 7.3	+ 4.3	+ 0.4
Lower Lakes	10	24.6	− 4.7	− 2.5	− 0.2
Upper Lakes	12	21.0	− 3.3	+ 7.5	+ 0.6
North Dakota*	9	4.8	− 8.0	− 4.3	− 0.4
Upper Mississippi Valley	14	19.1	− 8.2	+ 3.8	+ 0.1
Missouri Valley	12	17.2	− 9.7	+ 5.4	+ 0.4
Northern slope	9	13.8	− 9.9	− 6.5	− 0.5
Middle slope	6	23.0	−10.0	+ 3.7	+ 0.3
Southern slope*	7	35.6	− 6.6	+12.0	+ 1.0
Southern Plateau*	11	34.3	− 6.3	− 9.6	− 0.8
Middle Plateau*	10	18.3	− 9.4	− 3.8	− 0.3
Northern Plateau*	10	23.4	− 6.0	− 5.3	− 0.4
North Pacific	7	37.0	− 4.6	+14.3	− 1.2
Middle Pacific	5	45.9	− 2.4	− 4.7	− 0.4
South Pacific	4	51.0	− 1.7	− 0.4	0.0

Average precipitation and departures from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		Inches.		Inches.	Inches.
New England	11	2.53	76	− 0.8	− 3.2
Middle Atlantic	15	3.37	106	+ 0.2	− 3.2
South Atlantic	11	2.11	58	− 1.5	−11.6
Florida Peninsula*	8	1.98	74	− 0.7	− 4.8
East Gulf	11	5.23	88	− 0.7	+ 3.1
West Gulf	10	2.83	100	0.0	−12.2
Ohio Valley and Tennessee	13	3.06	88	− 0.4	+ 1.1
Lower Lakes	10	2.59	90	− 0.3	+ 0.7
Upper Lakes	12	2.93	138	+ 0.8	+ 0.1
North Dakota*	9	1.26	225	+ 0.7	+ 0.3
Upper Mississippi Valley	15	2.46	132	+ 0.6	+ 3.0
Missouri Valley	12	1.97	184	+ 0.9	+ 5.5
Northern slope	9	0.85	113	+ 0.1	+ 0.5
Middle slope	6	0.86	113	+ 0.1	+ 1.7
Southern slope*	7	0.57	49	− 0.6	− 7.8
Southern Plateau*	11	1.32	143	+ 0.4	+ 0.1
Middle Plateau*	11	1.75	167	+ 0.7	+ 2.0
Northern Plateau*	10	1.23	66	− 0.6	+ 0.6
North Pacific	7	4.66	59	− 3.3	− 0.8
Middle Pacific	7	5.02	114	+ 0.6	+ 6.6
South Pacific	4	6.34	296	+ 4.2	+ 9.8

*Regular Weather Bureau and selected cooperative stations.

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	79	+ 3	Missouri Valley	84	+ 9
Middle Atlantic	70	− 5	Northern slope	83	+15
South Atlantic	71	− 7	Middle slope	79	+13
Florida Peninsula	80	− 1	Southern slope	73	+ 7
East Gulf	73	− 4	Southern Plateau	68	+22
West Gulf	72	− 2	Middle Plateau	83	+13
Ohio Valley and Tennessee	77	+ 1	Northern Plateau	82	+ 2
Lower Lakes	81	+ 3	North Pacific	86	0
Upper Lakes	85	+ 3	Middle Pacific	76	− 5
North Dakota	92	+13	South Pacific	70	+ 1
Upper Mississippi Valley	85	+ 7			

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	5.7	− 0.4	Missouri Valley	6.0	+ 0.8
Middle Atlantic	5.2	− 0.6	Northern slope	6.0	+ 0.8
South Atlantic	4.1	− 0.8	Middle slope	4.6	+ 0.5
Florida Peninsula	4.5	− 0.2	Southern slope	4.8	− 0.2
East Gulf	5.0	− 0.5	Southern Plateau	4.6	+ 1.4
West Gulf	4.8	− 0.4	Middle Plateau	5.8	+ 1.0
Ohio Valley and Tennessee	6.7	− 0.4	Northern Plateau	8.0	+ 1.2
Lower Lakes	8.3	+ 0.6	North Pacific	7.0	− 0.8
Upper Lakes	8.1	+ 0.8	Middle Pacific	6.0	+ 0.6
North Dakota	6.9	+ 1.5	South Pacific	5.6	+ 1.3
Upper Mississippi Valley	7.0	+ 1.2			

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Atlanta, Ga.	25	50	w.	Nantucket, Mass.	26	61	e.
Do.	26	50	nw.	New York, N. Y.	25	56	ne.
Block Island, R. I.	23	50	nw.	Do.	26	58	ne.
Do.	26	72	ne.	North Head, Wash.	1	52	nw.
Buffalo, N. Y.	5	56	sw.	Do.	2	56	nw.
Do.	6	54	sw.	Do.	8	52	sw.
Do.	7	72	w.	Do.	9	64	se.
Do.	8	50	w.	Do.	11	72	se.
Do.	13	52	sw.	Do.	12	66	s.
Do.	14	60	sw.	Do.	29	50	s.
Burlington, Vt.	14	50	se.	Pensacola, Fla.	12	52	se.
Chicago, Ill.	5	52	sw.	Pittsburg, Pa.	7	69	w.
Cleveland, Ohio.	5	51	s.	Point Reyes Light, Cal.	1	66	nw.
Detroit, Mich.	5	56	sw.	Do.	2	75	nw.
Do.	7	52	w.	Do.	4	78	s.
Eastport, Me.	14	66	e.	Do.	5	51	nw.
Do.	26	50	ne.	Do.	6	64	s.
Erie, Pa.	13	55	se.	Do.	8	66	s.
Grand Haven, Mich.	5	52	sw.	Do.	9	50	nw.
Grand Rapids, Mich.	5	52	sw.	Do.	31	52	nw.
Hatteras, N. C.	25	58	w.	Port Huron, Mich.	5	50	sw.
Do.	26	54	w.	Portland, Me.	14	54	se.
Modena, Utah.	9	50	sw.	Savannah, Ga.	25	52	w.
Do.	31	51	s.	Sioux City, Iowa.	16	50	nw.
Mount Tamalpais, Cal.	1	50	nw.	Southeast Farallon, Cal.	1	55	nw.
Do.	2	62	nw.	Do.	2	59	nw.
Do.	3	50	n.	Do.	4	62	sw.
Do.	6	54	se.	Do.	6	67	s.
Do.	8	52	sw.	Do.	8	52	s.
Do.	9	62	nw.	Tatoosh Island, Wash.	4	72	ne.
Mount Weather, Va.	7	63	nw.	Do.	6	86	e.
Do.	8	50	nw.	Do.	7	80	e.
Do.	22	56	nw.	Do.	8	64	e.
Do.	23	66	nw.	Do.	9	56	s.
Do.	26	73	nw.	Do.	10	53	sw.
Do.	29	64	nw.	Do.	11	50	s.
Do.	30	53	nw.	Topeka, Kans.	5	55	sw.
Nantucket, Mass.	14	50	se.				

RAINFALL IN JAMAICA.

Through the kindness of Mr. Maxwell Hall, meteorologist to the government of Jamaica and now in charge of the meteorological service of that island, we have received the following data:

Comparative table of rainfall.

[Based upon the average stations only.]

DECEMBER, 1909.

Divisions.	Relative area.	Number of stations.	Rainfall	
			1909.	Average.
			Inches.	*Inches.*
Northeastern division	25	17	2.22	9.96
Northern division	22	41	2.59	5.88
West-central division	26	20	1.48	3.67
Southern division	27	26	0.62	2.74
Means	100		1.73	5.56

The rainfall over the island was remarkably small, being only one-third of the average. The greatest rainfall, 10.27 inches, was recorded at Green Vale, in Portland, and no rainfall occurred at several stations in the southern division.

General summary for the year 1909.

[From about 110 "average" stations.]

Month.	NE.	N.	W.-C.	S.	The island.
1909.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
January	8.78	4.08	2.07	2.50	4.35
February	2.75	0.77	1.76	1.24	1.63
March	3.83	2.36	3.76	1.52	2.87
April	4.19	1.47	5.03	3.88	3.64
May	6.15	5.75	11.31	4.13	6.84
June	4.98	5.22	9.46	6.01	6.42
July	4.78	3.40	8.44	5.45	5.52
August	8.60	6.15	10.78	7.03	8.14
September	15.18	12.70	19.45	16.50	15.96
October	13.13	7.88	14.08	12.32	11.85
November	38.07	13.66	14.24	18.92	21.22
December	2.22	2.59	1.48	0.62	1.73
Total	112.66	66.03	101.84	80.12	90.17

RIVERS AND FLOODS.

The principal floods of the month occurred in Oregon and Washington, reaching their height during the last week of November, but continuing during the first few days of December. Those in the Willamette watershed in the State of Oregon were caused by persistent heavy rains from November 17 to 24, inclusive, and were almost entirely rain floods, as there was but little snow in the mountains. There had, however, been frequent and substantial rains during the first half of the month, and these so saturated the soil that practically all of the succeeding rains ran into the rivers. These later rains from November 17 to 24, inclusive, averaged about 80 per cent of the normal amount for the entire month of November, and were sufficient in themselves to cause an ordinary flood. The first preliminary advices and warnings were issued on November 22, when the rise first set in, and were continued daily until November 29, when announcement was made that the Willamette River was falling at all points, and that the rain then falling would not be sufficient to check the fall. The warnings were very successful, the crest stages reached differing but slightly from those forecast. At Salem, Oreg., the crest stage on November 25 was 30.7 feet, 10.7 feet above the flood stage, and the highest recorded stage, the record extending back to the year 1891, while at Portland the crest stage of 22.3 feet on November 26 was 7.3 feet above the flood stage, and the highest November stage of record. The following table shows the crest stages at the different stations and the times of their occurrence.

This flood occurred at a time of year when there were no growing crops, and the losses and damage were consequently very much less than would have resulted at another season. Lowlands were flooded generally, but the sedimentary deposits were, as usual along rivers of this character, very beneficial to the lands. Some hops were watersoaked, a few bridges were carried away, and some mills were obliged to close, but it is doubtful whether the total losses from the flood amounted to more than $200,000. The data regarding this flood were furnished by Mr. H. J. Andree of the Local Office of the Weather Bureau at Portland, Oreg.

Station.	River.	Flood stage.	Highest stage.	Date.
Eugene	Willamette	10	21.5	Nov. 23, 12:00 noon.
Harrisburg	do.	7	14.8	Nov. 23, 3:00 p. m.
Albany	do.	20	31.0	Nov. 24, 3:00 p. m.
Jefferson	Santiam	10	17.0	Nov. 23, 8:00 a. m.
Salem	Willamette	20	30.7	Nov. 25, 5:00 a. m.
McMinnville	Yamhill	35	39.0	Nov. 24, 9:00 a. m.
Wilsonville	Willamette	37	39.5	Nov. 25, 8:00 a. m.
Tualitin	Tualitin	15	9.7	Nov. 25, 8:00 a. m.
Portland	Willamette	15	22.3	Nov. 26, 1:00 p. m.

In the State of Washington the floods occurred in the small, but swift flowing streams that head in the Olympic Mountains, the rivers on both sides of the Cascade Mountains, and the Chehalis and Willapa rivers that head in the coast range and flow directly into the Pacific Ocean. The floods were caused by a combination of the heaviest November rainfalls on record, and warm winds that melted the snow fields at the headwaters of the streams. The rainfall was almost continuous, except for a few days about the middle of the month, and all the rivers were in flood, some of them reaching stages higher than ever before recorded. No details were available for the rivers in the northwestern part of the State, but the cooperative observers of the Weather Bureau agreed in the general statement that the floods were the greatest that had

occurred since they had lived in that section. In other sections there were the usual reports of damage to railroads, bridges, farm lands, live stock, grain, etc. The greatest damage appears to have been done along the Skagit and Chehalis rivers, but an accurate estimate of the total amount is impossible.

The losses along the Skagit River alone amounted to over $1,000,000, and those along the Chehalis to about half as much. Roughly speaking the total losses could not have been less than $4,000,000.

The data regarding the Washington floods were furnished by Mr. G. N. Salisbury, Section Director in charge of the Local Office of the Weather Bureau at Seattle, Wash.

During the first week of the month there were frequent and heavy rains over the Sacramento and lower San Joaquin watersheds and flood stages were nearly reached in the main rivers. At Red Bluff, Cal., the crest stage on December 9 was 22.4 feet, 0.6 foot below the flood stage; at Colusa, Cal., on December 10, 23.5 feet, 4.5 feet below the flood stage, and at Sacramento, Cal., on December 9, 24 feet, 1 foot below the flood stages for places outside the city. Warnings were first issued on December 8, and no reports of damage have been received.

There were no other floods reported and over the great rivers of the country seasonable stages prevailed.

ICE.

At the end of the month the Missouri River was closed as far south as the mouth of the Platte River, and there were also small gorges in the vicinity of Kansas City from December 17 to 25, inclusive. The Mississippi River was frozen as far south as the mouth of the Des Moines River, closing on December 6 at St. Paul, Minn., and on December 26 at Keokuk, Iowa. Heavy ice passed St. Louis beginning with December 10, a gorge forming on December 22, 1 mile above Chester, Ill., and on December 29 at St. Louis, continuing at the close of the month. No ice of consequence reached as far south as Memphis, Tenn.

The Ohio River was full of ice during the last half of the month and numerous gorges formed during the last few days as far down as the mouth of the Wabash River. The upper Monongahela and the Kiskiminetas rivers closed on December 20, and the Allegheny at Freeport, Pa., on December 21. The Connecticut River closed at Wells River, Vt., on December 10, at White River Junction, Vt., on December 28, and at Bellows Falls, Vt., on December 29. The Penobscot River at Mattawamkeag, Me., did not close until December 25.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.—*H. C. Frankenfield, Professor of Meteorology.*

SPECIAL PAPERS ON GENERAL METEOROLOGY.

RECENT PAPERS BEARING ON METEOROLOGY AND SEISMOLOGY.

C. FITZHUGH TALMAN, Librarian.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau. Unsigned articles are indicated by a ——.

Engineering news. New York. v. 62. December 9, 1910.
—— The problem of flood protection. p. 644–645.
—— Flood prevention and land fertilization by basin irrigation in the Sacramento-San Joaquin valley. p. 647–648.
Nature. London. v. 82. February 3, 1910.
—— Sir Charles Todd, K. C. M. G., F. R. S. p. 403.
Physical review. Lancaster. v. 30. February, 1910.
Thomson, A. On the relative number of positive and negative ions present in atmospheric air. p. 288–289. [Abstract.]
Strong, W. W. Thunderstorm electricity. 290–291. [Abstract.]
Popular science monthly. New York. v. 76. March, 1910.
Ward, Robert DeC. Climate in some of its relations to man. p. 246–268.
Royal society of Edinburgh. Proceedings. Edinburgh. v. 30, pt. 1. 1909–1910.
Knott, C. G. Seismic radiations. p. 25–37.
Science. New York. v. 31. 1910.
Varney, B. M. Mountain and valley winds in the Canadian Selkirks. p. 192–193. (Feb. 4.)
Humphreys, W. J. Some suggestions for the study of comets. p. 226–230. [Suggests meteorological phenomena to be observed.] (Feb. 11.)
Varney, B. M. Some long-period deviations of the horizontal pendulums at the Harvard seismographic station. p. 230–232. (Feb. 11.)
Hobbs, Wm. H. A national bureau of seismology. p. 260. (Feb. 18.)
Scientific American. New York. v. 102. Feb. 19, 1910.
—— The great flood of Paris. p. 164. [Illustrated.]
Scottish geographical magazine. Edinburgh. v. 26. February, 1910.
Wedderburn, W. S. The temperature seiche. p. 83–86.
Scottish meteorological society. Journal. Edinburgh. v. 15. 1909.
Balfour, Frances, & Omond, R. T. Sir Arthur Mitchell, K. C. B. p. 3–8. [With portrait.]
Begg, John S. The influence of topographical conditions upon the east of Scotland. p. 9–15.
Innes, R. T. A. Meteorology in the Transvaal. p. 16–23. [Illustrated.]
Wood, H. E. The intensity distribution of rainfall over the Witwatersrand. p. 24–29.
Watt, Andrew. The exploration of the upper air. p. 30–41.
—— The study of weather knowledge in schools. p. 42–43.
—— The new observatory on Eskdalemuir. p. 44–45.
Symons's meteorological magazine. London. v. 45. February, 1910.
—— Proposed imperial meteorological organization. p. 1–4.
Ciel et terre. Bruxelles. 30 annee. 1 février 1910.
Walravens, A. La sécheresse de l'air à l'intérieur des habitations. p. 549–553.
W., A. Quelques problémes d'hygrométrie. p. 553–560.
L., E. Ole Römer et le thermomètre Fahrenheit. p. 560–562.
Nature. Paris. 38 année. 1910.
Lemoine, Paul. Les crues de la Seine. p. 145–156. [Illustrated.] (5 fév.)
Guillaume, Ch. Ed. Les unités de la météorologie. p. 158–159. (5 fév.)
Loisel, J. Le givre et la neige. p. 183–186. [Illustrated.] (19 fév.)
Revue néphologique. Mons. Tome 4. Janrier 1910.
Le télanémographe Masereel. p. 389.
Physikalische Zeitschrift. Leipzig. 11. Jahrgang. 1. Febuar 1910.
Bateman, H. Die Lösung der Integralgleichung, welche die Fortpflanzungsgeschwindigkeit einer Erdbebenwelle am Innern der Erde mit den Zeiten verbindet, die die Störung gebraucht um zu verschiedenen Stationen auf der Erdoberfläche zu gelangen. p. 96–99.
Wetter. Berlin. 27. Jahrgang. Januar 1910.
Scheibel, —. Die feste Eisdecke, der Eisaufbruch, Eisgang und die damit verbundenen Eisversetzungen auf Flüssen und Strömen. p. 2–9.
Dreis, J. Über die Beobachtungen der Gewitter. p. 14–18.
—— Die Forelle als Wetterprophet. p. 18–19.
Schultheiss, —. Der Wetterdienst in Baden. p. 20–24.
Wiener Luftschiffer-Zeitung. Wien. 9. Jahrgang. 1. Februar 1910.
Broichsitter, Heinrich. Über Windmessapparate. p. 43–44.
Hemel en dampkring. Den Haag. 7. Jaargang. Januari 1910.
—— De bepaling van de ontwikkeling der halo's. p. 135–139.

RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Librarian.

The following have been selected from among the titles of books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be lent for a limited time

to officials and employees who make application for them. Anonymous publications are indicated by a ——.

Abbot, Henry L.
Regulation of rivers in the interests of navigation and modes of gauging the flow of water. (Reprinted from Professional memoirs, Engineer bureau, U. S. A., July–September, 1909.)

Alsace-Lorraine. Meteorolog. Landesanstalt.
Deutsches meteorologisches Jahrbuch 1903. Strassburg i. E. 1909. viii, 59 p. f°.

Commission sismique permanente.
Comptes rendus des séances . . . Tome 3. Liv. 2. No. 1. St. Petersburg. 1909. xxxiii, 119 p. 4°.

Davis, Gualterio G.
. . . Observaciones de las Islas Orcadas en al año 1904. Buenos Aires. 1905. 213 p. f°. (Anales de la Oficina meteorológico Argentina. . . . Tomo 16.)

Du Faur, E.
. . . The effect of polar ice on the weather. (Reprinted from Journal and proceedings of the Royal society of N. S. Wales. v. 41. p. 176–189.)

Galli, Ignazio.
. . . Come il termoscopio ad aria fu trasformato in termometro a liquido. Roma. 1909. 56 p. 4°. (Osservatorio fisico-meteorologico municipale di Velletri.)
. . . Della protezione offerta dai parafulmini e di alcuni quesiti sulla natura del fulmine. Roma. 1908. 58 p. 4°. (Osservatorio fisico-meteorologico municipale di Velletri.)
. . . Come si svolse il primo concetto del termoscopio ad aria. Roma. 1909. 55 p. 4°. (Osservatorio fisico-meteorologico municipale di Velletri.)

Geneva. Observatoire.
. . . L'hiver de 1909 et quelques hivers rigoureux à Genève, par Raoul Gautier. Genève. 1909. 29 p. 8°. (Extrait du Globe . . . Tome 48. Mémoires.)
Moyennes de 10 ans pour les éléments météorologiques observés aux fortifications de Saint-Maurice de 1899 à 1907 pár Raoul Gautier et Henri Duaime. Genève. 1909. 8°. 18 p. (Extr. Arch. sc. phys. nat. 4me pér. t. 28. Sept., 1909.)
Observations météorologiques faites aux fortifications de Saint-Maurice . . . 1908. Genève. 1910. 58 p. 8°. (Extr. Arch. sc. phys. nat. 4 pér. 1908–1910.)
Résumé météorologique de l'année 1908 pour Genève et le Grand Saint-Bernard . . . Genève.. 1909. 108 p. 8°.

Great Britain. Meteorological office.
Barometer manual for the use of seamen; with an appendix on the thermometer, hygrometer, and hydrometer. 6th ed. London. 1909. 67 p. 8°. [Official, no. 61.]
The free atmosphere in the region of the British Isles. Contributions to the investigation of the upper air, comprising a report by W. H. Dines . . . on apparatus and methods in use at Pyrton Hill, with an introduction and a note on the perturbations of the stratosphere by W. N. Shaw. London. 1909. iv, 56 p. f°. (M. o. 202.)

Guadalajara (Mexico). Observatorio del seminario.
. . . Resumen de las observaciones 1907. Guadalajara. 1907–1910. 8°.

India. Meteorological department.
Report on the administration . . . 1908–09. [Simla. 1909.] 19 p. f°.

Krakau. Observatoryum.
Wyniki spostrzezen meteorologicznych w Galicyi w roku 1908 zestawione w. c. k. Observatoryum astronomicznem w Krakowie. [Krakow. 1909.] 82 p. 8°.

Lambrecht, Wilhelm.
Wo und wie soll man Wettersäulen bauen? Göttingen. n. d. 24°. 8°.

Liuboslavskii, G.
Vliianie poverkhnostnago pokrova na temperaturu i obmien tepia v verkhnikh sloiakh pochvy. [The influence of the soil-covering on the temperature and interchange of heat in the upper layers of the soil.] S.-Peterburg. 1909. 92 p. 4°. (Repr. 19. vyp. izviestii Imperatorskago liesnogo instituta 1909.) [Russian t. p. and text. German abstract.]

Michelson, W. A.
Instruction pour l'emploi de l'actinomètre à lame bimétallique. [Moscou. 1909.] 3 p. 4°.

Russia. Ministry of agriculture. Meteorological bureau.
Landwirthschaftlich-meteorologische Abhandlungen. Lief. 1–5. St. Petersburg. 1901–1909. 4°. (Russian text.)

Sharpe, Francis R.
The general circulation of the atmosphere. Baltimore. 1909. p. 52–64. f°. (Thesis—Cornell univ.)

Tams, E.
Die seismischen Registrierungen in Hamburg vom 1. April 1908 bis zum 31. Dezember 1908. Hamburg. 1909. 33 p. 4°. (Jahrbuch der Hamburgischen wissenschaftl. Anstalten. 26. 1908. 6. Beiheft: Mitteilungen aus dem Physikalischen Staatslaboratorium.)

CONDENSED CLIMATOLOGICAL SUMMARY.

In the following table are given, for the various sections of the Climatological Service of the Weather Bureau, the average temperature and rainfall, the stations reporting the highest and lowest temperatures with dates of occurrence, the stations reporting the greatest and least monthly precipitation, and other data, as indicated by the several headings.

The mean temperatures for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperature and precipitation are based only on records from stations that have ten or more years of observations. Of course the number of such records is smaller than the total number of stations.

Temperature and precipitation by sections, December, 1909.

Section.	Temperature—in degrees Fahrenheit.								Precipitation—in inches and hundredths.					
	Section average.	Departure from the normal.	Monthly extremes.						Section average.	Departure from the normal.	Greatest monthly.		Least monthly.	
			Station.	Highest.	Date.	Station.	Lowest.	Date.			Station.	Amount.	Station.	Amount.
Alabama	41.2	− 5.7	Evergreen	82	5	4 stations	6	29†	5.27	+ 0.62	Spring Hill	10.94	Camp Hill	2.42
Arizona	40.0	− 5.1	Redrock	81	31	Flagstaff (3)	−22	24	1.50	+ 0.22	Grand Canyon (2)	4.55	Redrock	0.29
Arkansas	35.3	− 6.8	Pocohontas	82	4	Bergman	1	9	5.26	+ 1.35	Lewisville	9.35	Rogers	1.93
California	43.3	− 2.9	Newcastle	89	16	Tamarack	−24	4	6.92	+ 2.34	2 stations	20.14	Bagdad	0.00
Colorado	16.1	−10.1	Fort Morgan	78	31	Fraser	−47	18	1.56	+ 0.37	Cascade	6.93	2 stations	0.14
Florida	55.1	− 3.6	Arcadia	88	20	4 stations	16	30	2.71	− 0.26	Molino	9.81	Hilliard	0.14
Georgia	42.7	− 4.5	3 stations	81	1†	Toccoa	5	30	3.58	− 0.69	Clayton	7.54	Savannah	1.82
Hawaii	69.2	.....	2 stations	86	1†	Humuula, Hawaii	34	18	9.30	+ 3.62	Hakalau (Mauke)	32.43	Humuula, Hawaii	3.52
Idaho	20.6	− 6.6	Lewiston	55	12	Camas	−28	17	1.92	− 0.14	Garden Valley	6.09	Culdesac	0.19
Illinois	21.8	− 8.3	Cairo	72	4	Lanark	−21	30	3.06	+ 0.79	Sycamore	5.27	Griggsville	1.21
Indiana	23.6	− 8.0	Rome	73	4	Judyville	−22	30	3.09	+ 0.25	Vincennes	4.95	Eminence	2.29
Iowa	15.1	− 8.5	Keosauqua	60	1	Inwood	−26	29	2.18	+ 0.99	Clinton	6.10	2 stations	0.89
Kansas	22.8	−11.0	Hugoton	73	31	Blakeman	−17	7	1.47	+ 0.65	Centralia	3.15	Coldwater	0.06
Kentucky	29.8	− 8.1	Berea	79	4	Farmers	−14	30	3.18	− 0.56	Alpha	4.77	Berea	1.17
Louisiana	46.2	− 4.8	Opelousas	84	4	2 stations	10	20†	6.58	+ 2.10	Plain Dealing	10.09	2 stations	4.10
Maryland and Delaware	31.3	− 3.7	Portobello, Md	68	6	Frostburg, Md	− 1	30	3.61	+ 0.30	Darlington, Md	5.63	Solomons, Md	1.72
Michigan	22.6	− 2.4	Saginaw, W. S	66	5	Charlotte	−22	29	3.06	+ 0.92	Allegan	7.74	Watersmeet	1.02
Minnesota	10.0	− 5.8	St. Peter	58	2	Warroad	−39	9	1.54	+ 0.77	Milan	3.25	Angus	0.56
Mississippi	41.9	− 6.2	Tchula	84	4	2 stations	9	30	5.55	+ 0.32	Pearlington	8.98	Yazoo City	2.96
Missouri	24.9	− 9.1	Caruthersville	76	3	Belle	−17	30	2.86	+ 0.86	Sublett	6.17	Liberty	0.80
Montana	15.2	− 8.6	Troy	60	3	Grayling	−38	17	0.91	− 0.09	Snowshoe	4.26	2 stations	T.
Nebraska	14.4	−12.2	Burge	60	3	Mitchell	−26	5	1.75	+ 1.19	Beatrice	3.95	Ashton	0.21
Nevada	29.0	− 5.7	Jean	70	2	Halleck	−25	12	1.03	+ 0.51	Lewers' Ranch	10.60	Tonopah	0.16
New England*	25.5	− 1.8	Norfolk, Mass	62	5	Houlton, Me	−23	30	2.91	− 0.35	Canton, Conn	5.14	Benton, N. H	0.78
New Jersey	29.8	− 3.4	Vineland	60	5	Layton	−15	30	4.45	+ 0.59	Plainfield	5.51	Culver's Lake	3.55
New Mexico	28.1	− 5.6	Carlsbad	78	31	2 stations	−33	19	0.75	+ 0.03	Chama	3.32	Cuervo	0.06
New York	23.8	− 1.9	3 stations	59	1†	Old Forge	−25	31	2.61	− 0.47	Adams Center	9.53	Hemlock Lake	0.33
North Carolina	38.1	− 4.0	2 stations	77	7	Banners Elk	− 5	30	2.79	− 1.15	Brevard	7.11	Manteo	1.04
North Dakota	5.2	− 7.7	New Salem	54	1	Cando	−42	9	1.27	+ 0.76	Lakota	4.84	Marmarth	0.29
Ohio	25.4	− 5.5	2 stations	75	5†	Bellefontaine	−20	30	2.62	− 0.18	Montpelier	4.39	Ironton	1.49
Oklahoma	31.9	− 7.1	Gage	85	31	Hooker	−10	5	1.32	− 0.19	Hartshorne	5.20	Supply	0.10
Oregon	30.9	− 6.0	Gold Beach	69	17	Madras	−25	6	4.13	− 2.34	Happy Home	18.88	Bagley's Ranch	0.49
Pennsylvania	27.0	− 3.9	Claysville	71	5	Milford	−10	30	3.39	+ 0.07	Coatsville	8.50	Bellefonte	1.19
Porto Rico	72.8	− 1.8	2 stations	94	20†	Cidra	50	7†	1.68	− 2.33	Manati	4.67	2 stations	0.00
South Carolina	42.8	− 3.5	Batesburg	84	6	Liberty	7	30	2.81	− 0.77	Liberty	5.07	Chappells	0.88
South Dakota	10.4	−10.8	Fort Meade	60	31	Kidder	−30	29	1.77	+ 1.07	Hardy Ranger Sta	5.16	Hill City	0.39
Tennessee	33.9	− 6.4	Pope	78	5	Mountain City	− 6	31	3.40	− 0.87	Memphis	5.73	Newport	1.35
Texas	43.3	− 6.2	2 stations	90	3	Tulia	−11	20	2.55	+ 0.68	Marshall	8.47	Ochiltree	0.00
Utah	17.5	− 8.6	Hite	64	2	2 stations	−35	17†	2.16	+ 1.29	Grayson	6.63	Frisco	0.33
Virginia	32.4	− 4.7	Lebanon	72	5	Big Stone Gap	− 5	30	2.53	− 0.74	Culpeper	3.58	Ivor	0.50
Washington	29.1	− 6.3	Pomeroy	62	30	Republic	−11	23	3.26	− 1.78	Quiniault	15.08	Wahluke	0.30
West Virginia	28.8	− 4.8	Logan	78	5	Parsons	−10	30	2.55	− 0.78	Terra Alta	6.00	Huntington	1.16
Wisconsin	15.3	− 5.6	3 stations	62	1†	Mondovi	−27	18	2.26	+ 0.96	Port Washington	5.02	Glidden	0.62
Wyoming	11.8	−11.0	Chugwater	70	1	Eden	−40	24	1.23	+ 0.47	Rambler	13.35	Lovell	0.18

*Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut. †Other dates also.

TABLE I.—*Climatological data for U. S. Weather Bureau stations, December, 1909.*

Stations.	Elevation of instruments.			Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.								Mean wet thermometer.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.			Wind.					Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness during daylight, tenths.	Total snowfall.
	Barometer above sea level, feet.	Thermometers above ground.	Anemometer above ground.	Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hrs.	Departure from normal.	Mean max. + mean min. ÷ 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.				Total.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.				
New England.							**27.7**	**− 1.7**									**72**	**2.53**	**− 0.8**									**5.7**	
Eastport	76	67	85	29.65	29.73	− .25	25.8	+ 0.5	44	14	30	2	30	21	14	24	20	79	1.69	− 2.3	10	11,029	w.	66	e.	14	5	7	19	7.5	9.6
Greenville	1,070	6	....	28.60	29.82	.....	19.0	.....	37	6	24	− 8	30	14	21	.....	.....	.....	2.59	.....	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.3
Portland, Me.	103	81	117	29.70	29.83	− .20	27.2	+ 0.1	48	14	33	− 1	31	21	23	23	18	70	2.06	− 1.6	6	7,944	nw.	54	se.	14	15	7	9	4.5	8.4
Concord	288	70	79	29.52	29.84	− .22	24.6	− 1.8	50	6	32	− 7	29	17	31	.....	.....	.....	2.56	− 0.8	7	5,077	nw.	27	e.	14	11	13	7	5.0	8.5
Burlington	404	11	48	29.43	29.89	− .16	21.2	− 1.3	42	6	26	− 8	30	16	23	.....	.....	.....	1.53	− 0.2	17	7,810	nw.	50	se.	14	4	4	23	8.3	14.3
Northfield	876	16	70	28.90	29.89	− .16	18.8	− 1.7	43	6	26	−16	30	12	30	17	15	89	1.58	− 1.1	14	5,220	n.	33	nw.	23	2	6	23	8.2	16.5
Boston	125	115	188	29.71	29.85	− .20	30.8	− 0.8	56	6	36	4	31	25	20	27	21	70	3.19	− 0.2	6	9,403	w.	45	ne.	26	17	7	7	4.3	12.3
Nantucket	12	14	90	29.80	29.81	− .24	33.2	− 3.5	52	14	38	11	31	29	19	29	24	72	1.85	− 1.8	10	12,849	nw.	61	e.	26	11	11	9	5.4	0.8
Block Island	26	11	46	29.82	29.85	− .21	32.7	− 3.9	53	14	37	9	30	28	22	28	22	64	3.10	− 0.7	6	16,220	nw.	72	ne.	26	9	12	10	5.7	0.6
Narragansett	.....	9	....	.....	.....	.....	30.2	− 2.3	54	6	38	2	31	22	26	.....	.....	.....	2.65	.....	7	.....	w.	.....	.....	.....	21	4	6	.....	2.0
Providence	160	141	165	29.68	29.86	− .20	29.4	− 2.2	54	6	36	1	31	23	23	25	19	70	2.70	− 0.7	6	9,396	nw.	40	se.	14	14	11	6	4.7	10.3
Hartford	159	122	140	29.71	29.89	− .18	28.2	− 1.6	52	14	34	0	30	22	23	24	19	70	2.83	− 0.7	5	5,846	nw.	35	nw.	26	13	9	9	4.8	17.5
New Haven	106	116	155	29.96	29.88	− .19	30.2	− 1.6	54	6	36	1	30	24	22	25	18	65	4.70	+ 1.0	5	7,893	w.	47	n.	26	15	9	7	4.2	15.8
Mid. Atlantic States.							**31.2**	**− 3.8**									**70**	**3.37**	**+ 0.2**									**5.2**	
Albany	97	102	115	29.81	29.92	− .16	26.3	− 1.2	45	5	32	− 2	30	21	22	23	19	76	2.36	− 0.2	6	5,331	nw.	30	n.	26	9	13	9	5.7	15.5
Binghamton	871	78	90	28.97	29.93	− .16	25.3	− 2.4	43	13	30	0	30	20	24	.....	.....	.....	1.48	− 1.0	6	5,732	w.	24	se.	13	4	2	25	8.4	7.0
New York	314	108	350	29.56	29.92	− .17	31.4	− 3.0	54	6	37	6	30	26	21	28	22	70	5.00	+ 1.6	6	11,964	w.	58	ne.	26	14	8	9	4.8	11.4
Harrisburg	374	94	104	29.58	30.00	− .12	29.8	− 3.0	56	5	35	10	29	24	22	26	19	64	2.98	+ C.3	6	6,464	w.	30	e.	13	9	10	12	5.6	8.5
Philadelphia	117	116	184	29.84	29.97	− .14	33.3	− 2.4	58	13	39	10	30	28	29	29	22	64	5.86	+ 2.8	6	8,741	nw.	37	se.	13	14	8	9	4.8	22.4
Scranton	805	111	119	29.06	29.95	− .15	27.0	− 2.8	46	6	32	2	29	22	20	24	18	71	3.39	− 0.8	10	6,635	sw.	32	w.	14	6	5	20	7.5	17.0
Atlantic City	52	37	48	29.90	29.96	− .14	31.6	− 4.8	57	5	38	7	30	25	25	28	22	71	3.88	+ 0.1	6	6,590	nw.	38	se.	13	12	8	11	5.0	3.0
Cape May	17	48	52	29.97	29.99	− .12	33.2	− 4.8	53	5	38	12	30	28	19	30	25	72	4.55	+ 0.8	9	8,043	nw.	40	nw.	26	15	10	6	4.5	6.7
Baltimore	123	100	113	29.86	30.00	− .13	33.2	− 3.7	62	5	39	9	30	27	26	29	22	65	4.62	+ 1.5	7	5,444	nw.	27	nw.	26	10	17	4	4.6	10.9
Washington	112	62	85	29.88	30.01	− .12	31.8	− 4.3	66	5	40	8	30	24	30	27	20	65	3.39	+ 0.2	8	5,830	nw.	37	nw.	26	14	10	7	4.2	5.2
Cape Henry	18	9	58	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lynchburg	681	83	88	29.26	30.03	− .11	34.2	− 4.1	66	5	43	12	30	26	32	29	24	70	2.79	− 0.5	5	3,517	nw.	30	nw.	26	11	13	7	4.9	5.0
Mount Weather	1,725	10	54	28.07	29.98	− .15	26.4	− 5.1	56	5	32	− 1	30	20	23	23	17	70	2.93	− 0.2	7	14,766	nw.	73	nw.	26	13	11	7	4.5	9.1
Norfolk	91	102	111	29.91	30.01	− .12	38.8	− 4.2	64	13	45	13	30	31	23	33	27	65	1.91	− 1.6	4	6,643	nw.	44	nw.	26	16	8	7	3.9	0.3
Richmond	144	145	153	29.87	30.03	− .11	35.8	− 5.2	64	4	44	10	30	28	27	.....	.....	.....	3.39	+ 0.4	6	5,658	nw.	46	nw.	26	9	16	6	4.6	2.3
Wytheville	2,293	40	47	27.58	30.06	− .09	29.8	− 5.5	76	5	38	1	30	22	36	25	23	83	2.02	− 1.7	6	5,727	w.	34	w.	26	13	8	10	5.0	2.0
S. Atlantic States.							**43.1**	**− 4.1**									**71**	**2.11**	**− 1.5**									**4.1**	
Asheville	2,255	53	75	27.63	30.09	− .07	32.7	− 5.1	66	4	43	3	30	22	34	28	25	82	3.19	− 0.9	10	6,985	nw.	42	nw.	26	16	9	6	4.6	0.6
Charlotte	773	68	76	29.20	30.05	− .11	39.2	− 3.7	69	4	48	12	30	31	27	33	26	65	2.51	− 1.4	7	4,913	sw.	33	sw.	13	12	9	10	4.7	0.2
Hatteras	11	12	47	29.99	30.00	− .13	44.0	− 4.8	69	13	50	20	30	38	24	40	37	82	2.15	− 3.0	7	11,960	nw.	58	w.	25	20	6	5	3.8	T.
Manteo	12	12	46	.....	.....	.....	40.6	.....	66	8	49	16	30	32	.....	.....	.....	.....	1.04	− 4.2	2	.....	nw.	.....	.....	.....	19	4	8	.....	T.
Raleigh	376	103	110	29.62	30.03	− .12	39.4	− 3.3	69	5	48	12	30	30	27	32	24	58	1.89	− 1.3	3	6,008	nw.	38	nw.	26	16	8	7	3.9	T.
Wilmington	78	81	91	29.96	30.05	− .10	43.8	− 3.4	73	5	53	16	30	34	28	37	31	69	2.50	− 0.6	10	5,998	nw.	36	nw.	26	18	6	7	3.5	T.
Charleston	48	14	92	30.01	30.06	− .09	47.2	− 4.1	68	13	55	18	30	39	25	41	36	70	1.75	− 1.4	8	7,626	w.	37	sw.	25	17	6	8	3.5	
Columbia, S. C.	351	41	57	29.67	30.06	− .10	42.6	− 4.6	72	5	53	13	30	32	33	36	29	66	2.06	− 0.8	9	5,084	w.	43	sw.	13	10	11	10	5.0	T.
Augusta	180	89	97	29.88	30.08	− .08	43.0	− 4.0	71	5	53	13	30	33	31	38	35	78	1.98	− 1.4	10	4,924	w.	36	w.	25	13	9	9	4.7	
Savannah	65	81	89	30.02	30.09	− .06	47.5	− 3.8	72	6	56	17	30	39	27	41	34	66	1.82	− 1.3	8	9,452	w.	52	w.	25	16	6	9	4.0	
Jacksonville	43	96	129	30.04	30.09	− .05	51.4	− 3.8	75	5	61	19	30	42	29	46	42	78	2.30	− 0.7	9	6,827	nw.	42	w.	25	16	8	7	4.3	
Florida Peninsula.							**63.5**	**− 1.3**									**80**	**1.22**	**− 1.0**									**4.5**	
Jupiter	28	10	46	30.02	30.05	− .05	63.8	− 2.5	82	20	72	30	30	45	28	58	54	78	0.99	− 1.9	8	7,993	nw.	36	se.	12	9	15	7	4.9	
Key West	22	10	53	30.03	30.05	− .03	69.2	− 0.9	81	18	74	48	30	64	15	65	63	84	1.61	− 0.2	9	6,953	ne.	32	nw.	26	13	16	2	4.2	
Sand Key	25	41	71	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tampa	35	79	96	30.04	30.08	− .04	57.6	− 1.9	80	5	67	26	31	48	29	51	48	78	1.66	− 1.0	9	5,942	nw.	29	w.	25	15	9	7	4.3	
East Gulf States.							**44.1**	**− 5.0**									**73**	**5.23**	**− 0.7**									**5.0**	
Atlanta	1,174	190	216	28.82	30.09	− .07	38.2	− 6.4	71	4	47	10	30	30	30	34	29	74	3.51	− 1.0	9	10,862	w.	50	nw.	26	13	5	13	5.4	T.
Macon	370	78	87	29.67	30.08	− .08	42.2	− 4.6	70	5	52	14	30	32	33	.....	.....	.....	2.14	− 3.2	9	5,043	nw.	32	nw.	25	15	4	12	5.0	T.
Thomasville	273	8	57	29.80	30.11	− .04	47.5	− 5.0	77	5	59	17	30	36	37	42	38	77	4.19	+ 0.5	11	4,225	nw.	25	nw.	29	18	5	8	3.9	
Pensacola	56	79	96	30.04	30.10	− .05	50.2	− 3.7	74	2	58	21	30	42	30	.....	.....	.....	8.55	+ 4.4	16	10,730	n.	52	se.	12	15	7	9	4.2	
Anniston	741	9	57	29.31	30.12	− .04	39.0	− 5.2	73	4	49	9	30	29	33	.....	.....	.....	5.56	+ 1.0	12	5,272	n.	28	w.	25	11	7	13	5.5	0.3
Birmingham	700	11	48	29.34	30.14	− .02	40.2	− 7.1	71	4	49	12	30	31	33	34	29	70	4.41	− 0.2	15	5,902	n.	35	se.	12	9	8	14	6.0	3.2
Mobile	57	98	106	30.04	30.11	− .04	48.6	− 2.9	73	2	57	22	30	40	30	43	38	72	7.50	+ 2.9	14	6,337	nw.	28	nw.	25	15	11	5	4.0	
Montgomery	223	100	112	29.87	30.13	− .03	43.5	− 5.6	70	4	52	18	30	34	32	38	33	71	5.78	+ 1.3	13	4,666	nw.	29	nw.	25	12	6	13	5.2	
Meridian	375	84	93	29.71	30.12	− .04	42.0	− 4.9	73	4	53	16	30	31	36	36	31	72	4.34	− 0.9	13	4,589	n.	32	w.	7	11	8	12	5.1	
Vicksburg	247	62	74	29.84	30.13	− .02	43.5	− 5.9	78	4	52	21	30	34	30	38	33	71	4.18	− 0.8	9	5,727	n.	26	nw.	25	10	7	14	5.6	
New Orleans	51	90	121	30.05	30.11	− .02	50.4	− 4.0	77	1	59	26	30	42	32	46	43	80	7.40	− 2.9	15	7,338	n.	27	nw.	25	13	4	14	4.9	
West Gulf States.							**42.2**	**− 6.4**									**72**	**2.83**	**0.0**									**4.8**	
Shreveport	249	77	84	29.86	30.14	+ .01	42.2	− 6.7	76	4	51	20	20	33	30	37	33	74	6.38	+ 2.0	11	5,565	nw.	25	w.	5	14	6	11	4.7	1.6
Bentonville	1303	11	44	28.69	30.11	− .02	29.4	− 8.1	69	4	38	4	8	20	37	.....	.....	.....	2.76	0.0	10	4,566	nw.	24	s.	3	18	6	7	4.2	3.1
Fort Smith	457	79	94	29.63	30.14	+ .01	34.0	− 7.7	72	4	42	13	9	26	35	29	24	68	2.18	− 0.7	8	6,826	e.	37	nw.	25	13	6	12	5.0	1.4
Little Rock	357	139	147	29.74	30.13	− .01	37.1	− 6.4	75	4	45	16	9	29	42	32	27	71	5.31	+ 1.1	11	7,038	nw.	36	nw.	28	15	4	12	5.0	2.5
Brownsville	57	4	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Corpus Christi	20	69	77	30.08	30.10	− .02	53.6	− 3.0	80	3	61	30	20	46	32	48	44	74	0.90	− 0.4	7	9,351	n.	41	n.	5	10	7	14	5.7	
Fort Worth	670	106	114	29.42	30.15	+ .03	39.4	− 8.1	77	31	49	9	20	30	35	.....	.....	.....	2.81	+ 1.6	5	7,543	nw.	32	nw.	7	17	5	9	4.0	2.0
Galveston	54	106	112	30.06	30.12	.00	52.4	− 3.9	76	3	59	31	20	46	24	48	44	75	2.51	− 1.2	9	10,171	se.	46	nw.	5	11	10	10	5.2	
Palestine	510	73	79	29.58	30.13	+ .01	42.2	− 7.2	78	4	52	18	20	33	36	38	33	73	2.40	− 1.3	8	5,844	n.	32	w.	4	13	10	8	4.7	0.3
San Antonio	701	80	91	29.36	30.11	.00	47.8	− 5.3	81	3	58	24	20	38	35	42	37	70	1.38	− 0.2	8	5,626	n.	33	n.	11	12	8	11	5.4	
Taylor	583	55	63	29.51	30.14	+ .03	43.4	− 7.2	80	3	53	20	20	34	37	.....	.....	.....	1.66	− 1.0	9	6,769	n.	34	nw.	4	17	4	10	4.2	
Ohio Val. and Tenn.							**39.9**	**− 7.3**									**77**	**3.06**	**− 0.4**									**6.7**	
Chattanooga	762	106	112	29.29	30.13	− .03	36.5	− 6.1	62	7	45	9	30	28	32	31	25	68	5.39	+ 1.0	12	6,528	nw.	38	w.	25	12	6	13	5.7	7.0
Knoxville	996	93	100	29.00	30.10	− .06	34.0	− 5.7	63	5	42	8	30	26	27	30	25	75	2.49	− 1.7	8	3,994	sw.	27	w.	13	8	14	9	6.1	1.4
Memphis	399	76	97	29.70	30.14	− .01	36.2	− 7.3	74	4	43	16	9	29	27	32	27	71	5.73	+ 1.4	8	7,282	nw.	40	w.	5	13	6	12	5.2	3.2
Nashville	546	168	191	29.52	30.13	− .02	34.8	− 6.3	72	4	44	6	30	26	30	30	26	73	2.90	− 0.9	11	7,766	w.	42	s.	5	8	8	15	6.3	0.8
Lexington	989	75	102	28.98	30.09	− .05	27.8	− 8.6	65	4	36	− 4	30	20	31	.....	.....	.....	2.77	− 0.6	10	8,774	w.	40	sw.	7	6	5	20	7.2	5.0
Louisville	525	111	132	29.50	30.10	− .04	29.4	− 8.7	67	4	37	1	30	22	29	27	23	78	2.81	− 0.9	13	6,880	w.	40	w.	5	8	6	17	6.5	1.7
Evansville	431	72	82	29.60	30.08	− .05	29.2	− 7.2	69	4	36	1	30	22	31	.....	.....	.....	3.48	− 0.4	11	5,945	w.	38	w.	5	6	14	11	6.5	5.8
Indianapolis	822	154	164	29.14	30.06	− .06	23.4	− 9.2	60	4	30	− 8	30	16	31	21	19	83	2.90	− 0.1	11	8,753	sw.	48	sw.	5	6	8	17	7.0	8.2
Cincinnati	628	152	160	29.37	30.08	− .05	28.0	− 8.4	65	5	35	− 3	30	20	35	25	21	75	2.40	− 0.5	11	6,515	sw.	30	sw.	7	6	5	20	7.1	5.8
Columbus	824	173	222	29.13	30.04	− .08	25.8	− 7.0	67	5	33	− 4	30	19	39	23	20	80	2.58	− 0.2	13	9,234	w.	45	nw.	7	6	12	13	6.3	11.0
Pittsburg	842	336	352	29.09	30.02	− .09	26.8	− 7.9	65	5	34	− 1	30	20	25	24	20	76	2.30	− 0.4	14	9,009	w.	69	w.	7	4	8	19	7.8	8.6
Parkersburg	638	77	84	29.38	30.07	− .07	29.6	− 5.6	71	5	37	1	30	22	33	26	22	80	1.99	− 0.8	12	5,154	sw.	30	sw.	7	4	11	16	7.3	6.6
Elkins	1,940	41	50	27.92	30.08	− .04	26.6	− 5.9	71	5	35	− 2	30	18	41	23	22	91	2.02	− 1.4	16	3,613	w.	28	w.	7	3	8	20	7.9	13.2
Lower Lake Region.							**24.6**	**− 4.7**									**81**	**2.59**	**− 0.3**									**8.3**	
Buffalo	767	178	206	29.08	29.93	− .13	26.6	− 3.5	55	5	31	4	30	22	21	24	21	82	4.20	+ 0.8	21	14,859	w.	72	w.	7	2	2	27	8.8	25.9
Canton	448	10	71	29.41	29.91	.....	19.8	− 2.9	42	14	26	−13	29	14	24	.....	.....	.....	1.29	− 2.3	18	8,499	w.	48	w.	8	1	4	26	8.8	6.8
Oswego	335	76	91	29.54	29.92	− .14	26.1	− 3.1	45	6	31	− 1	31	21	21	24	22	84	5.16	+ 1.6	19	10,073	sw.	40	w.	8	1	2	28	9.0	42.1
Rochester	523	86	102	29.35	29.94	− .12	26.1	− 2.8	47	6	30	5	29	22	20	23	20	79	1.72	− 1.2	17	8,413	w.	37	w.	8	0	8	23	8.5	14.6
Syracuse	597	97	113	29.27	29.93	− .14	24.9	− 3.4	48	6	30	− 3	30	20	20	.....	.....	.....	1.76	− 0.9	17	9,482	sw.	48	w.	7	2	6	23	8.5	17.1
Erie	714	92	102	29.16	29.96	− .11	26.2	− 5.5	61	5	31	9	9	22	24	24	20	79	1.85	− 1.2	21	10,809	sw.	55	sw.	13	3	2	26	8.6	18.5
Cleveland	762	190	201	29.14	29.99	− .10	24.6	− 6.5	63	5	31	1	30	18	34	23	19	78	2.05	− 0.5	20	12,766	sw.	51	s.	5	3	5	23	7.9	16.3
Sandusky	629	62	70	29.29	30.00	− .09	24.2	− 6.9	66	5	30	− 3	29	18	37	.....	.....	.....	2.23	− 0.1	13	7,141	sw.	33	w.	7	5	7	19	7.3	13.1
Toledo	628	207	246	29.30	30.01	− .07	24.4	− 6.1	62	5	31	0	29	18	34	22	19	81	3.05	+ 0.8	13	13,569	sw.	55	sw.	5	6	6	19	7.0	15.1
Detroit	730	218	258	29.16	29.98	− .09	23.0	− 6.5	59	5	29	− 1	29	17	22	21	19	84	2.59	+ 0.2	17	13,315	w.	56	sw.	5	2	5	24	8.7	14.7

TABLE I.—*Climatological data for U. S. Weather Bureau stations, December, 1909*—Continued.

Stations.	Elevation of instruments.			Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.								Mean wet thermometer.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.			Wind.					Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness during daylight, tenths.	Total snowfall.
	Barometer above sea level, feet.	Thermometers above ground.	Anemometer above ground.	Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hrs.	Departure from normal.	Mean max. + mean min. ÷ 2	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.			Total.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.					
Upper Lake Region.							21.0	− 3.3							23		86	2.93	+ 0.8								8.1	
Alpena	609	13	92	29.22	29.91	− .11	24.1	− 0.7	46	5	29	2	30	19	20	22	20	3.07	+ 0.8	18	8,556	w.	42	s.	5	3	5	23	8.4	27.7
Escanaba	612	40	82	29.26	29.95	− .08	20.6	− 1.0	47	2	26	2	30	15	31	19	16	82	3.50	+ 1.9	14	7,653	w.	36	sw.	5	4	7	20	7.5	20.8
Grand Haven	632	54	92	29.24	29.95	− .10	25.0	− 5.1	56	5	30	2	28	20	34	24	22	86	4.29	+ 1.8	25	10,192	w.	52	sw.	5	0	1	30	9.3	47.4
Grand Rapids	707	127	102	29.17	29.97	− .08	24.0	− 4.8	57	5	30	− 4	29	18	36	23	21	90	3.10	+ 0.6	20	8,896	w.	52	sw.	5	2	2	27	9.1	24.2
Houghton	608	68	74	29.19	29.94	− .08	21.8	+ 0.9	47	1	26	4	29	18	30	.....	.....	.....	2.61	+ 0.1	23	5,502	nw.	30	nw.	6	0	5	26	9.2	32.5
Marquette	734	77	116	29.12	29.94	− .08	21.8	− 1.1	49	4	27	5	30	16	29	20	17	81	3.42	+ 0.9	17	8,216	w.	32	e.	12	2	11	18	7.9	34.4
Port Huron	638	70	120	29.23	29.94	− .12	23.6	− 3.7	55	5	29	1	29	18	28	22	19	82	1.86	− 0.3	16	10,075	sw.	50	sw.	5	2	4	25	8.5	17.6
Sault Sainte Marie	614	40	61	29.20	29.93	− .07	21.0	+ 0.5	46	5	26	−10	29	16	24	20	18	85	1.91	− 0.4	18	6,840	e.	37	sw.	5	1	4	26	9.1	13.1
Chicago	823	140	310	29.09	30.02	− .06	21.6	− 7.7	55	5	28	− 7	30	15	36	21	18	84	4.18	+ 2.1	18	12,278	w.	52	sw.	5	6	9	16	6.8	19.1
Milwaukee	681	122	139	29.23	30.00	− .06	18.8	− 7.2	51	5	25	− 5	30	13	36	18	14	82	3.34	+ 1.4	17	8,983	w.	46	e.	12	8	10	13	6.6	21.3
Green Bay	617	49	86	29.26	29.96	− .08	17.0	− 4.3	50	1	24	− 9	30	10	34	16	12	81	2.10	+ 0.3	16	7,746	sw.	48	sw.	5	2	7	22	8.2	22.0
Duluth	1,133	11	47	28.72	30.00	− .05	12.4	− 5.3	42	1	18	−17	29	6	32	11	10	92	1.83	+ 0.6	11	10,987	nw.	45	ne.	5	5	11	15	7.0	4.2
North Dakota.							6.0	− 5.8							23			1.08	+ 0.5								6.9	
Moorhead	940	8	37	29.04	30.12	+ .04	6.6	− 4.1	38	1	13	−23	29	0	34	6	5	94	1.74	+ 1.0	14	6,624	nw.	30	se.	29	5	12	14	7.0	14.4
Bismarck	1,674	8	37	28.29	30.19	+ .11	7.0	− 8.0	41	30	15	−21	19	− 1	34	6	4	90	1.05	+ 0.4	12	8,374	nw.	40	nw.	15	6	11	14	6.6	15.5
Devils Lake	1,482	11	44	28.43	30.11	+ .05	3.6	− 4.4	35	1	11	−31	9	− 4	38	3	2	93	1.05	+ 0.7	12	9,298	nw.	38	n.	16	7	7	17	6.9	12.4
Williston	1,872	14	56	28.06	30.16	+ .10	6.8	− 6.8	40	31	16	−20	8	− 2	34	6	4	91	0.46	− 0.2	6	7,248	nw.	44	nw.	31	8	7	16	7.0	4.6
Upper Miss. Valley.							19.1	− 2.2							25			2.46	+ 0.6								7.0	
Minneapolis	918	102	208	.....	.....	.....	12.5	.....	48	1	18	−17	29	6	24	.....	.....	.....	2.38	+ 1.4	14	8,507	w.	30	w.	5	7	5	19	7.4	19.2
St. Paul	837	171	179	29.08	30.03	− .05	12.2	− 7.1	48	1	18	−18	29	6	27	12	9	82	1.52	+ 0.5	12	8,108	nw.	36	sw.	5	6	8	17	7.0	14.5
La Crosse	714	11	48	29.20	30.02	− .06	15.2	− 7.6	52	1	23	−11	18	8	43	.....	.....	.....	1.79	+ 0.5	14	4,045	sw.	18	sw.	5	3	9	19	7.7	16.4
Madison	974	70	78	28.89	30.00	− .08	15.4	− 7.3	51	5	22	− 8	29	9	41	14	11	84	3.15	+ 1.4	14	7,304	w.	40	sw.	5	7	8	16	7.1	23.1
Charles City	1,015	10	49	28.92	30.05	− .05	13.4	− 5.6	48	2	20	−16	29	6	29	13	12	94	1.87	+ 0.6	16	5,696	nw.	26	nw.	16	3	7	21	8.2	16.4
Davenport	606	71	79	29.36	30.05	− .05	17.8	− 9.4	55	2	25	−10	29	11	40	17	15	90	3.12	+ 1.4	13	6,617	w.	28	w.	5	6	9	16	6.8	16.3
Des Moines	861	84	101	29.11	30.07	− .04	16.9	− 8.8	48	1	24	−12	29	10	34	16	14	88	2.32	+ 1.0	14	6,416	w.	29	w.	5	10	2	2	6.5	16.0
Dubuque	608	100	115	29.27	30.06	− .04	16.6	− 7.9	54	5	24	−11	29	9	43	16	14	88	2.08	+ 0.4	17	4,749	w.	22	sw.	5	8	7	16	6.8	17.7
Keokuk	614	64	78	29.38	30.10	− .02	20.6	− 8.8	55	2	28	− 9	30	14	38	18	15	82	2.56	+ 0.7	9	6,465	sw.	35	sw.	5	8	9	14	6.2	8.3
Cairo	356	87	93	29.72	30.12	− .03	31.0	− 7.5	72	4	38	4	30	24	30	28	24	75	3.84	+ 0.5	12	6,903	nw.	41	w.	5	7	9	15	6.5	1.0
La Salle	536	58	64	29.45	30.03	− .04	19.0	− 8.5	55	1	26	−10	30	12	35	.....	.....	.....	3.64	+ 1.4	14	7,096	w.	39	w.	5	4	14	13	6.8	21.0
Peoria	699	11	45	29.37	30.07	− .04	19.2	− 8.9	58	5	27	−12	30	12	39	18	16	87	2.50	+ 0.1	11	7,047	w.	36	w.	5	8	8	15	6.5	18.0
Springfield, Ill	644	10	91	29.34	30.06	− .06	22.0	− 9.3	59	5	29	− 7	30	15	38	21	19	87	1.47	− 1.0	11	6,988	w.	31	sw.	5	7	5	19	6.9	13.3
Hannibal	534	75	109	29.48	30.08	− .04	22.2	− 9.1	57	5	30	− 7	29	15	38	.....	.....	.....	2.72	+ 1.1	13	7,187	w.	42	w.	5	9	5	17	6.4	12.8
St. Louis	567	208	217	29.44	30.07	− .06	26.4	− 9.1	62	5	33	− 1	29	19	38	24	21	82	1.89	− 0.3	13	8,755	w.	42	w.	5	4	3	24	8.2	9.1
Missouri Valley.							17.2	− 9.7							24			1.27	+ 0.9								6.0	
Columbia, Mo	784	11	84	29.22	30.09	− .03	22.8	−10.1	57	4	30	− 8	29	15	40	.....	.....	.....	3.60	+ 1.6	12	6,933	w.	26	sw.	5	10	9	12	5.6	8.7
Kansas City	963	161	181	29.02	30.10	− .02	22.2	− 9.3	55	1	29	− 1	29	15	31	21	18	77	2.47	+ 1.1	10	9,286	nw.	46	nw.	25	9	8	14	5.9	8.9
Springfield, Mo	1,324	98	104	28.64	30.10	− .03	26.5	− 9.0	64	4	34	− 1	8	18	34	24	22	86	2.25	− 0.4	9	8,390	nw.	38	w.	5	13	8	10	4.9	4.3
Iola	984	11	50	29.04	30.14	+ .02	24.3	− 8.2	57	1	33	− 2	8	16	32	.....	.....	.....	1.73	+ 0.8	6	5,656	nw.	26	nw.	24	11	11	9	4.8	5.0
Topeka	983	85	101	.....	.....	.....	21.2	− 9.9	53	1	29	− 1	29	13	32	.....	.....	.....	2.17	+ 1.3	8	7,474	nw.	26	nw.	16	14	4	13	5.1	8.8
Lincoln	1,189	11	84	28.80	30.13	+ .01	15.2	−11.7	49	1	22	−12	19	8	36	14	11	85	2.59	+ 1.9	14	7,428	nw.	33	nw.	16	9	5	17	6.4	19.9
Omaha	1,105	115	121	28.87	30.12	+ .01	15.6	−11.5	47	1	22	− 9	29	10	38	15	12	86	2.33	+ 1.4	16	7,072	nw.	32	nw.	16	10	5	16	6.0	19.1
Valentine	2,598	47	54	27.29	30.18	+ .08	12.4	−12.1	46	31	21	−16	8	4	37	11	8	87	1.14	+ 0.5	10	8,040	nw.	44	nw.	27	7	17	7	5.2	6.4
Sioux City	1,135	96	164	28.84	30.12	.00	12.8	− 9.8	45	1	19	−15	29	6	37	12	9	85	1.04	+ 0.3	15	9,814	nw.	50	nw.	16	8	7	16	6.7	8.3
Pierre	1,572	70	75	28.42	30.19	+ .09	12.0	− 8.1	44	30	18	−12	20	5	37	10	5	75	1.10	+ 0.6	11	8,072	nw.	42	nw.	16	7	9	15	6.3	12.1
Huron	1,306	56	67	28.68	30.17	+ .07	8.9	− 6.8	41	1	16	−22	29	2	36	8	6	90	1.37	+ 0.8	15	8,694	nw.	40	n.	16	3	11	17	7.3	10.3
Yankton	1,233	49	57	28.73	30.13	+ .02	12.1	−10.1	46	1	19	−19	19	5	38	.....	.....	.....	1.90	+ 1.2	12	7,286	nw.	31	nw.	16	7	6	18	7.2	17.2
Northern Slope.							13.8	− 9.9							23			0.85	+ 0.1								6.0	
Havre	2,505	11	44	27.44	30.20	+ .15	11.8	− 9.4	48	30	21	−23	7	3	42	11	8	86	0.56	− 0.1	8	7,345	sw.	43	sw.	30	5	7	19	7.4	5.6
Miles City	2,371	26	48	27.55	30.24	+ .14	13.0	− 8.0	48	30	22	−17	22	4	36	12	9	85	0.37	− 0.2	10	4,795	s.	30	nw.	27	14	8	9	4.9	4.5
Helena	4,110	8	56	25.83	30.23	+ .10	15.0	− 9.8	42	12	23	−14	7	8	38	13	10	81	0.59	− 0.2	8	4,520	nw.	36	w.	10	8	11	12	6.2	6.8
Kalispell	2,962	11	34	27.02	30.22	+ .15	19.2	− 4.7	41	13	25	− 2	21	13	28	17	14	83	1.01	− 0.8	11	2,672	nw.	28	w.	31	6	4	21	7.2	9.3
Rapid City	3,234	46	50	26.59	30.21	+ .12	14.6	−11.4	57	31	25	−16	7	5	48	12	8	78	1.00	+ 0.5	11	5,175	w.	37	n.	16	7	11	13	6.2	9.6
Cheyenne	6,088	56	64	23.88	30.10	+ .01	19.2	− 9.8	56	31	29	−13	6	10	34	16	11	73	0.66	+ 0.4	11	8,120	nw.	40	nw.	30	11	13	7	4.8	7.7
Lander	5,372	26	36	24.61	30.31	+ .16	3.7	−15.5	44	31	15	−30	18	− 8	32	2	0	87	2.06	+ 1.4	7	1,564	ne.	16	n.	16	6	16	9	5.7	20.6
Sheridan	3,790	9	47	26.10	30.22	.....	10.2	.....	54	31	22	−27	5	− 2	48	9	7	85	1.25	.....	11	5,407	nw.	42	nw.	27	8	17	6	5.2	26.5
Yellowstone Park	6,200	11	48	23.81	30.22	+ .06	12.4	− 9.2	36	9	21	−16	21	4	25	11	8	82	1.27	− 0.6	18	4,944	s.	29	s.	31	5	12	14	6.4	14.6
North Platte	2,821	11	51	27.10	30.19	+ .09	15.2	−11.4	51	31	25	−14	7	6	39	13	10	86	1.37	+ 0.9	10	5,861	w.	31	nw.	13	11	9	11	5.5	11.9
Middle Slope.							23.0	−10.0							79			0.86	+ 0.1								4.6	
Denver	5,291	129	136	24.64	30.11	+ .03	21.2	−11.0	63	31	33	−13	17	10	39	18	13	73	0.88	+ 0.3	6	4,377	sw.	32	w.	13	17	10	4	3.8	11.7
Leadville	10,242	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pueblo	4,685	80	86	25.23	30.12	+ .04	20.2	−11.5	61	31	32	−16	18	8	37	17	13	76	0.72	+ 0.3	8	4,083	nw.	38	nw.	26	16	12	3	3.5	8.6
Concordia	1,398	42	50	28.60	30.15	+ .04	18.3	−11.2	50	1	27	− 6	8	10	32	17	15	87	1.15	+ 0.7	8	5,043	nw.	26	nw.	28	10	10	11	5.8	10.2
Dodge City	2,509	44	54	27.42	30.16	+ .06	22.2	− 9.4	63	31	32	− 4	7	13	38	19	15	77	0.79	+ 0.2	8	7,929	nw.	38	n.	6	14	11	6	4.7	9.8
Wichita	1,358	98	121	28.67	30.16	+ .05	24.8	− 9.4	51	31	33	0	7	17	27	23	19	78	1.31	+ 0.5	5	8,131	nw.	34	nw.	24	10	13	8	5.2	6.0
Oklahoma	1,214	10	47	28.81	30.14	+ .03	31.0	− 7.6	67	3	40	6	7	22	29	28	25	81	0.34	− 1.4	7	11,082	n.	44	s.	26	14	9	8	4.4	1.4
Southern Slope.							37.7	− 6.1							73			0.66	− 0.3								4.8	
Abilene	1,738	45	54	28.26	30.13	+ .02	38.6	− 6.4	75	3	49	3	20	28	34	34	28	71	0.73	− 0.4	4	5,860	s.	27	sw.	10	11	11	9	5.2	2.5
Amarillo	3,676	10	49	26.25	30.09	.00	30.9	− 5.5	75	31	42	3	19	30	40	26	23	81	0.54	− 0.3	4	7,578	n.	35	n.	6	15	10	6	5.0	5.3
Del Rio	944	8	57	29.10	30.11	+ .01	47.0	− 5.4	82	4	59	26	19	35	45	.....	.....	.....	1.14	− 0.4	7	4,981	se.	36	n.	17	17	6	8	4.1	....
Roswell	3,578	9	57	26.37	30.10	+ .03	34.2	− 7.0	73	2	49	−10	20	20	43	28	21	68	0.31	− 0.2	3	4,424	n.	39	nw.	24	12	13	6	5.1	3.1
Southern Plateau.							34.3	− 7.4							69			1.58	+ 0.6								4.6	
El Paso	3,762	110	133	26.20	30.04	+ .01	40.4	− 4.4	69	2	51	10	20	30	38	32	20	49	0.56	0.0	3	8,765	nw.	49	nw.	6	13	13	5	4.3	4.1
Santa Fe	7,013	8	56	23.16	30.14	+ .08	21.9	− 8.4	55	31	33	− 6	19	10	35	17	12	71	0.55	− 0.2	7	7,016	ne.	30	n.	11	16	12	3	3.6	5.6
Flagstaff	6,907	8	57	23.27	30.04	− .02	22.1	− 6.3	52	30	36	−12	24	9	59	18	14	75	2.98	+ 1.0	12	4,996	sw.	28	sw.	10	13	5	13	5.3	30.7
Phoenix	1,108	50	56	28.86	30.04	.00	48.1	− 3.8	70	30	59	25	5	37	32	43	39	74	1.02	+ 0.4	5	2,316	w.	20	s.	21	14	11	6	4.4	T.
Yuma	141	9	58	29.90	30.05	.00	50.2	− 5.5	74	2	61	26	4	40	34	40	27	44	0.46	C. 0	3	5,880	n.	32	n.	15	17	6	8	3.7	
Brawley	†105	11	31	30.17	30.06	.....	49.4	.....	74	2	61	24	19	38	35	.....	.....	.....	0.59	.....	5	3,472	nw.	27	nw.	2	10	8	13	5.7	
Independence	3,910	11	42	26.00	30.11	− .01	25.9	−15.7	67	1	37	3	6	15	35	25	23	93	3.91	+ 2.4	11	4,602	nw.	36	s.	31	11	8	12	5.4	33.5
Middle Plateau.							31.3	− 9.2							23			1.71	+ 0.7								5.6	
Reno	4,532	56	63	25.44	30.11	− .04	29.6	− 4.1	55	12	38	8	6	21	27	26	22	76	2.42	+ 0.8	8	2,873	sw.	38	se.	4	6	13	12	6.0	2.3
Tonopah	6,090	12	20	24.01	30.14	.....	24.2	.....	48	1	30	9	4	19	26	22	19	80	0.16	− 0.6	7	6,648	se.	40	nw.	2	11	12	8	5.1	3.4
Winnemucca	4,344	18	56	25.64	30.16	− .02	23.5	− 7.2	44	1	32	1	24	15	27	23	22	98	2.44	+ 1.4	14	4,315	ne.	29	sw.	5	6	5	20	7.0	6.1
Modena	5,479	10	43	24.60	30.15	+ .03	19.9	−12.8	49	1	31	−11	24	9	38	17	14	82	1.02	+ 0.2	11	6,478	w.	51	sw.	31	9	11	11	5.7	8.9
Salt Lake City	4,360	105	110	25.65	30.16	+ .01	24.0	− 8.1	48	31	30	4	18	18	26	22	19	81	1.50	+ 0.2	11	4,125	se.	35	s.	31	7	12	12	6.8	13.8
Durango	6,546	18	56	23.59	30.17	+ .10	16.6	− 11.7	43	1	29	−12	29	5	41	14	12	86	3.81	+ 2.4	13	3,380	nw.	23	w.	4	15	7	9	4.3	34.2
Grand Junction	4,608	43	51	25.4	30.17	+ .07	17.1	−11.1	43	1	26	−15	25	8	35	15	11	79	0.67	+ 0.3	10	2,772	nw.	20	e.	5	12	6	13	5.5	9.9
Northern Plateau.							25.4	− 5.7							32			1.39	− 0.4								8.0	
Baker City	3,471	48	58	26.50	30.21	+ .05	19.0	− 8.4	39	9	27	− 6	21	11	25	18	16	84	1.64	+ 0.1	12	4,323	se.	22	nw.	2	8	7	16	6.6	23.3
Boise	2,739	78	86	27.27	30.23	+ .03	27.4	− 4.8	49	9	33	12	6	22	31	25	22	81	1.55	− 0.2	10	3,763	nw.	28	se.	9	2	8	21	8.3	6.2
Lewiston	757	10	51	29.36	30.20	+ .07	32.4	− 5.1	55	12	37	16	22	28	20	.....	.....	.....	0.63	− 0.9	10	3,625	e.	26	ne.	4	2	5	24	8.4	2.4
Pocatello	4,477	46	54	25.51	30.22	+ .03	19.3	− 9.1	40	31	27	− 4	3	12	34	18	14	77	0.89	0.0	11	5,688	se.	36	se.	31	1	11	19	7.5	11.2
Spokane	1,929	91	110	28.08	30.21	+ .13	25.8	− 5.0	45	12	30	6	22	21	26	25	22	83	1.56	− 1.1	9	3,644	n.	24	sw.	12	3	4	24	8.1	6.9
Walla Walla	1,000	71	79	29.11	30.22	+ .10	28.1	− 7.9	55	12	32	8	4	24	32	26	24	85	2.07	0.0	13	3,226	s.	31	se.	30	1	5	25	8.9	11.0
N. Pac. Coast Reg.							37.0	− 4.6							36			4.66	− 3.3								7.0	
Blaine	58	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Head	11	11	56	29.82	30.05	+ .02	39.5	− 4.8	56	61	45	26	5	34	20	38	37	91	5.24	− 2.2	13	11,621	e.	72	se.	11	12	3	16	6.1	1.2

TABLE I.—*Climatological data for U. S. Weather Bureau stations, December, 1909*—Continued.

Stations.	Elevation of instruments.			Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.										Mean wet thermometer.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.			Wind.				Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness during daylight, tenths.	Total snowfall.
	Barometer above sea level, feet.	Thermometers above ground.	Anemometer above ground.	Actual, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hrs.	Departure from normal.	Mean max. + mean min. ÷ 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.					Total.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.					
N.P.Coast Reg.-Con.																														
Port Crescent	259	8	53	29.78	30.07	+ .09	35.4	− 2.9	52	16	40	22	4	30	20					4.83	− 2.0	13	5,256	se.	40	ne.	31	4	12	15	6.7	0.5
Seattle	123	185	224	29.99	30.12	+ .11	36.4	− 4.8	52	12	40	25	23	33	16	35	33	86	2.69	− 3.4	12	5,860	n.	37	s.	12	5	5	21	7.7	2.1
Tacoma	213	113	120	29.87	30.10	+ .09	35.3	− 5.0	56	11	40	19	23	31	19	35	33	89	4.95	− 2.4	12	4,415	sw.	28	sw.	12	7	3	21	7.5	10.3
Tatoosh Island	86	7	57	29.93	30.03	+ .07	39.8	− 4.1	50	11	43	31	3	37	12	37	34	79	6.77	− 7.8	12	18,359	e.	86	e.	6	5	11	15	6.7	3.1
Portland, Oreg.	153	68	106	30.04	30.11	+ .04	35.6	− 5.7	58	12	40	24	4	31	20	33	30	83	4.47	− 2.9	11	5,314	e.	33	e.	4	11	5	15	6.3	10.3
Roseburg	510	9	57	29.52	30.08	− .03	36.8	− 5.1	58	12	42	19	22	32	19	35	34	89	3.68	− 2.2	16	1,863	s.	18	n.	2	1	10	20	7.7	0.3
Mid. Pac. Coast Reg.							45.9	− 2.4											76	5.62	+ 0.6									6.0	
Eureka	62	62	80	29.96	30.03	− .09	46.3	− 1.7	66	17	53	32	23	40	27	44	40	79	4.29	− 3.0	15	5,561	se.	43	se.	6	13	5	13	5.4	
Mount Tamalpais	2,375	11	18	27.52	30.03	− .09	41.8	.....	57	29	46	29	3	37	19	38	34	78	7.30	− 3.0	14	15,467	ne.	62	nw.	2	8	5	18	6.5	T.
Point Reyes Light	490	7	18	29.45	29.97	.....	49.6	.....	68	17	54	40	3	45	21	.....	.....	.....	3.50	.....	13	14,241	nw.	78	s.	4	10	7	14	5.8	
Red Bluff	332	50	56	29.70	30.07	− .07	44.1	− 2.3	64	16	51	29	4	37	30	39	33	69	4.35	− 0.1	10	4,294	nw.	25	n.	14	12	2	17	5.7	15.0
Sacramento	69	106	117	29.97	30.04	− .10	44.0	− 2.3	60	17	50	29	4	38	26	42	39	82	3.87	+ 0.3	13	6,563	se.	48	se.	4	8	8	15	6.3	
San Francisco	155	200	204	29.87	30.04	− .08	49.2	− 1.7	63	15	54	38	4	44	17	45	39	72	5.59	+ 1.4	14	4,515	nw.	33	sw.	8	11	4	16	5.9	
San José	141	12	110	29.88	30.02	.....	45.8	− 4.1	66	5	55	26	4	36	33	.....	.....	.....	5.41	+ 2.4	14	4,639	se.	42	se.	8	9	6	16	6.0	
Southeast Farallon	30	9	17	29.98	30.01	.....	50.4	.....	62	53	20	47	15	.....	.....	.....	.....	.....	4.32	+ 0.1	14	11,165	n.	67	s.	6	10	6	15	6.0	
S. Pac. Coast Reg.							51.0	− 1.7											70	6.34	+ 4.2									5.6	
Fresno	330	67	70	29.70	30.06	− .07	45.2	− 1.6	62	1	52	30	3	38	26	42	39	80	4.50	+ 3.0	11	3,385	e.	24	se.	5	6	6	19	7.0	
Los Angeles	338	159	191	29.66	30.03	− .04	53.8	− 1.5	74	30	62	37	4	46	25	45	36	58	7.00	+ 4.1	10	5,551	ne.	30	se.	31	12	7	12	5.2	
San Diego	87	94	102	29.93	30.02	− .05	53.8	− 1.9	71	30	61	36	19	47	22	48	43	72	3.76	+ 1.9	9	4,086	ne.	32	sw.	5	14	8	9	4.5	
San Luis Obispo	201	47	54	29.82	30.04	− .07	51.0	− 1.8	72	15	60	29	19	42	30	45	39	70	10.09	+ 7.8	13	4,090	n.	30	se.	5	9	6	16	5.9	
West Indies.																														
Grand Turk	11	6	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
San Juan	82	48	90	29.91	30.00	+ .03	74.8	.....	84	29	80	66	26	70	16	69	67	79	3.58	− 0.7	19	6,040	ne.	29	e.	12	11	16	4	4.9	
Panama.																														
Cristobal	17	5	60	29.84	29.86	.....	76.6	.....	82	22	80	66	3	73	15	74	74	92	34.38	.....	29	7,707	n.	10	sw.	33	5	11	15	7.0	
Culebra	172	4	30	29.44	29.85	.....	76.5	.....	86	17	83	65	3	70	20	72	72	94	10.58	.....	21	5,577	nw.	8	n.	26	2	12	17	8.0	
Ancon	92	6	69	29.75	29.84	.....	78.0	.....	90	22	85	66	3	71	23	73	72	91	12.39	.....	20	5,674	nw.	8	nw.	24	2	13	16	8.0	
Alhajuela	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22.90	.....	26	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Bohio	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20.53	.....	29	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Gatun	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	31.66	.....	30	.....	.....	.....	.....	.....	.....	.....	.....	.....	

† Below sea level.

TABLE II.—*Accumulated amounts of precipitation for each 5 minutes, for storms in which the rate of fall equaled or exceeded 0.25 in any 5 minutes, or 0.80 inch in 1 hour, during December, 1909, at all stations furnished with self-registering gages.*

Stations.	Date.	Total duration. From—	Total duration. To—	Total amount of precipitation.	Excessive rate. Began—	Excessive rate. Ended—	Amount before excessive began.	Depths of precipitation (in inches) during periods of time indicated. 5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Abilene, Tex.	23			0.45														0.10			
Albany, N. Y.	14			0.49														0.18			
Alpena, Mich.	7			0.90														*			
Amarillo, Tex.	17–18			0.39														*			
Anniston, Ga.	6–7	3: 3 p. m.	7:10 a. m	2.26	8:21 p. m.	9:12 p. m.	0.66	0.11	0.31	0.41	0.48	0.58	0.66	0.71	0.83	0.94	1.02	1.07			
Asheville, N. C.	7			1.25														0.25			
Atlanta, Ga.	24			0.90														0.28			
Atlantic City, N. J.	13	D. N.	D. N.	2.17	8:55 p. m.	9:21 p. m.	1.07	0.07	0.33	0.50	0.66	0.90	0.95								
Augusta, Ga.	13			0.70														0.23			
Baker City, Oreg.	11–12			0.41														*			
Baltimore, Md.	13			3.08														0.76			
Bentonville, Ark.	4			1.50														0.44			
Binghamton, N. Y.	25–26			0.72														*			
Birmingham, Ala.	7			0.46														0.26			
Bismarck, N. Dak.	10			0.29														*			
Block Island, R. I.	14			0.91														0.34			
Boise, Idaho	8–9			0.65														*			
Boston, Mass.	25–26			1.71														*			
Buffalo, N. Y.	13–14			1.17†														*			
Burlington, Vt.	13–14			0.56														*			
Ca.ro, Ill.	11–12			1.49														*			
Canton, N. Y.	7–8			0.34														*			
Charles City, Iowa	4–5			0.44														*			
Charleston, S. C.	18			0.34														0.24			
Charlotte, N. C.	13			1.39														0.32			
Chattanooga, Tenn.	6–7	4:25 p. m.	6:00 a. m.	1.88	3:32 a. m.	4:02 a. m.	1.08	0.07	0.15	0.37	0.57	0.69	0.74								
Cheyenne, Wyo.	2–3			0.27														*			
Chicago, Ill.	12–13			0.95†														*			
Cincinnati, Ohio	12–13			0.90														*			
Cleveland, Ohio	13			0.08														0.31			
Columbia, Mo.	4–5			1.63														*			
Columbia, S. C.	13			0.94														0.30			
Columbus, Ohio	12–13			0.91														*			
Concord, Mass.	13–14			1.56														*			
Concordia, Kans.	4			0.48														*			
Corpus Christi, Tex.	5			0.10														0.09			
Davenport, Iowa	4–5			1.36														*			
Del Rio, Tex.	12			0.18														0.12			
Denver, Colo.	16			0.41														*			
Des Moines, Iowa	24			0.73†														*			
Detroit, Mich.	12–13			1.00†														*			
Devils Lake, N. Dak.	1–2			0.50														*			
Dodge City, Kans.	4			0.41														*			
Dubuque, Iowa	4–5			0.66														*			
Duluth, Minn.	5			1.18														*			
Durango, Colo.	21–22			1.05														*			
Eastport, Me.	8			0.36														0.10			
Elkins, W. Va.	7			0.26														0.10			
El Paso, Tex.	17–18			0.41														*			
Erie, Pa.	17–18			0.40†														*			

TABLE II.—*Accumulated amounts of precipitation for each 5 minutes, etc.*—Continued.

Stations.	Date.	Total duration. From—	Total duration. To—	Total amount of precipitation.	Excessive rate. Began—	Excessive rate. Ended—	Amount before excessive began.	Depths of precipitation (in inches) during periods of time indicated. 5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Escanaba, Mich.	5			1.47														*			
Eureka, Cal.	8			0.40														0.93			
Evansville, Ind.	11–12			1.14														*			
Flagstaff, Ariz.	20–21			1.21														*			
Fort Smith, Ark.	4–5			1.26														*			
Fort Worth, Tex.	4	11:04 a. m.	8:50 p. m.	1.26	5:29 p. m.	6:00 p. m.	0.11	0.09	0.12	0.22	0.35	0.42	0.50	0.52							
Fresno, Cal.	6			0.41														0.19			
Galveston, Tex.	11–12	7:01 p. m.	1:00 a. m.	0.83	7:06 p. m.	7:22 p. m.	0.03	0.14	0.21	0.39	0.43										
Grand Haven, Mich.	12			0.68														*			
Grand Junction, Colo.	22–23			0.24														*			
Grand Rapids, Mich.	13			0.51														0.09			
Green Bay, Wis.	11–12			0.54														*			
Hannibal, Mo.	4–5			1.42†														*			
Harrisburg, Pa.	13			1.80														0.28			
Hartford, Conn.	13–14			1.29														*			
Hatteras, N. C.	13	2:45 p. m.	7:45 p. m.	1.46	6:59 p. m.	7:39 p. m.	0.57	0.17	0.40	0.46	0.49	0.55	0.61	0.72	0.89						
Havre, Mont.	9			0.12														*			
Helena, Mont.	2–3			0.22†														*			
Houghton, Mich.	5–6			0.64														*			
Huron, S. Dak.	1–3			0.41														*			
Independence, Cal.	8–9			1.52														*			
Indianapolis, Ind.	12			0.70														*			
Iola, Kans.	4			0.96														*			
Jacksonville, Fla.	13	7:20 a. m.	11:15 a. m.	1.09	8:29 a. m.	9:10 a. m.	0.26	0.09	0.17	0.33	0.44	0.51	0.56	0.65	0.77	0.80					
Jupiter, Fla.	12–13			0.33														0.17			
Kalispell, Mont.	8–9			0.34														*			
Kansas City, Mo.	4–5			1.21														*			
Keokuk, Iowa	4–5			1.39														*			
Key West, Fla.	20	6:32 p. m.	10:10 p. m.	1.03	8:49 p. m.	9:04 p. m.	0.55	0.06	0.22	0.36											
Knoxville, Tenn.	6–7			0.97														*			
La Crosse, Wis.	4–5			0.46														*			
Lander, Wyo.	16			0.84														*			
La Salle, Ill.	4–5			1.14														*			
Lewiston, Idaho	9			0.23														0.09			
Lexington, Ky.	7			0.78														*			
Lincoln, Nebr.	1–2			1.18														*			
Little Rock, Ark.	5	12:05 a. m.	5:00 a. m.	0.99	12:50 a. m.	1:09 a. m.	0.03	0.33	0.39												
Los Angeles, Cal.	8			2.29														0.37			
Louisville, Ky.	10–11			0.65†														*			
Lynchburg, Va.	13			0.31														1.65			
Macon, Ga.	12			0.41														0.29			
Madison, Wis.	11–12			1.06														*			
Marquette, Mich.	16–17			0.67														*			
Memphis, Tenn.	5			0.82														0.40			
Meridian, Miss.	11–12			1.04														*			
Milwaukee, Wis.	4–5			0.86														*			
Minneapolis, Minn.	4–5			0.91														*			
Mobile, Ala.	5	8:25 a. m.	10:50 a. m.	1.07	8:41 a. m.	9:13 a. m.	0.05	0.20	0.38	0.45	0.46	0.46	0.60	0.67							
Modena, Utah	20–21			0.28														*			
Montgomery, Ala.	1–2	10:30 p. m.	7:05 a. m.	0.98	5:59 a. m.	6:13 a. m.	0.39	0.18	0.28	0.40											
Moorhead, Minn.	5			0.56														*			
Mount Tamalpais, Cal.	1			1.10														0.42			
Mount Weather, Va.	12–13			1.96†														*			
Nantucket, Mass.	26			0.89														0.26			
Nashville, Tenn.	6–7			1.24														0.45			
New Haven, Conn.	13–14			2.06														0.33			
New Orleans, La.	1	2:15 p. m.	7:30 p. m.	1.07	4:58 p. m.	5:22 p. m.	0.15	0.05	0.19	0.50	0.70	0.78									
Do.	11–12	11:39 a. m.	12:50 p. m.	3.69	2:31 a. m.	3:36 a. m.	0.92	0.13	0.23	0.37	0.37	0.38	0.39	0.44	0.49	0.57	0.74	0.97	1.36	1.51	
New York, N. Y.	13			2.85														0.66			
Norfolk, Va.	13	12:15 p. m.	7:30 p. m.	1.45	6:48 p. m.	7:24 p. m.	0.44	0.20	0.37	0.60	0.73	0.81	0.89	0.98	1.01						
Northfield, Vt.	13–14			1.11														*			
North Head, Wash.	11			2.20														0.24			
North Platte, Nebr.	1			0.43														*			
Oklahoma, Okla.	23			0.09														0.04			
Omaha, Nebr.	24			0.57†														*			
Oswego, N. Y.	22			1.31														*			
Palestine, Tex.	11			0.35														0.65			
Parkersburg, W. Va.	7			0.27														0.19			
Pensacola, Fla.	6	5:15 p. m.	6:45 p. m.	1.36	5:39 p. m.	6:15 p. m.	0.05	0.06	0.32	0.42	0.58	0.72	1.03	1.22	1.23						
Do.	6–7	10:15 p. m.	1:40 a. m.	1.42	12:27 a. m.	12:47 a. m.	0.64	0.13	0.30	0.52	0.66										
Do.	12	9:15 a. m.	8:30 p. m.	1.08	10:29 a. m.	10:44 a. m.	0.05	0.23	0.62	0.78											
Peoria, Ill.	24–25			0.75														*			
Philadelphia, Pa.	13			2.22†														0.54			
Phoenix, Ariz.	5			0.30														0.11			
Pierre, S. Dak.	1			0.30														*			
Pittsburg, Pa.	12–13			0.98														*			
Pocatello, Idaho	31–1			0.26														*			
Point Reyes Light, Cal.	8			1.09														0.30			
Port Huron, Mich.	12–13			0.41														*			
Portland, Me.	13–14			0.79														*			
Portland, Oreg.	30			0.92														0.33			
Providence, R. I.	13–14			1.31														*			
Pueblo, Colo.	16–17			0.40														*			
Raleigh, N. C.	13			1.30														0.39			
Rapid City, S. Dak.	28			0.32														*			
Red Bluff, Cal.	8–9			1.23														*			
Reno, Nev.	30–31			1.45†														*			
Richmond, Va.	12–13	11:05 p. m.	6:55 p. m.	2.52	1:29 p. m.	1:42 p. m.	0.51	0.23	0.40	0.48											
Rochester, N. Y.	12–13			0.62†														*			
Roseburg, Oreg.	8			0.62														0.31			
Roswell, N. Mex.	18			0.18														*			
Sacramento, Cal.	8			1.23														0.28			
St. Louis, Mo.	10–11			0.46														*			
St. Paul, Minn.	4–5			0.53														*			
Salt Lake City, Utah	9–10			0.36														*			
San Antonio, Tex.	18–19			0.82														*			
San Diego, Cal.	9			1.10														0.30			
Sandusky, Ohio	24–25			0.70														*			
San Francisco, Cal.	4			0.96														0.38			
San Jose, Cal.	5			0.94														0.46			
San Luis Obispo, Cal.	8			3.44														0.39			
Santa Fe, N. Mex.	23–24			0.19														*			

TABLE II.—*Accumulated amounts of precipitation for each 5 minutes, etc.*—Continued.

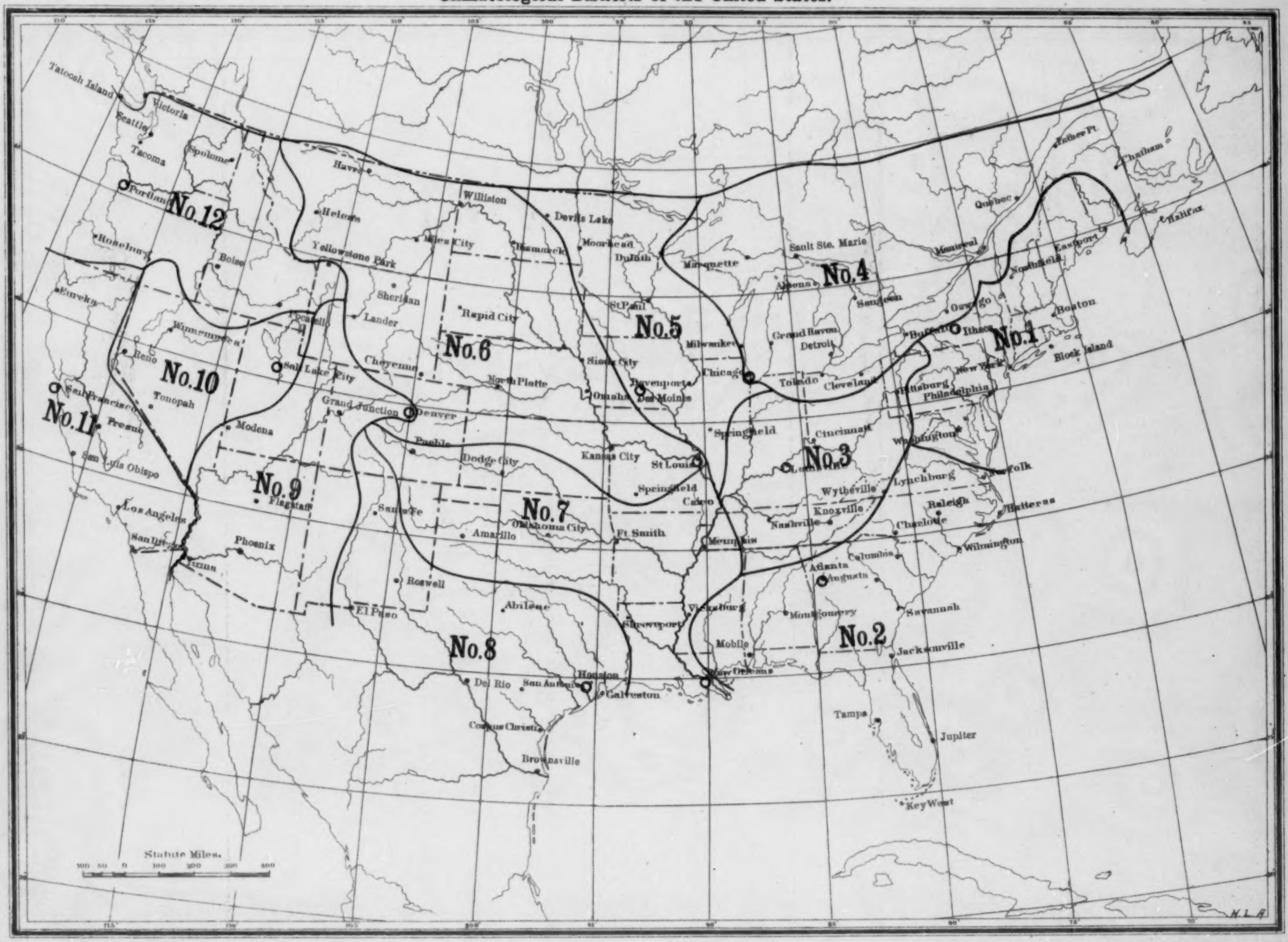
Stations.	Date.	Total duration. From—	Total duration. To—	Total amount of precipitation.	Excessive rate. Began—	Excessive rate. Ended—	Amount before excessive began.	Depths of precipitation (in inches) during periods of time indicated. 5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Sault Ste. Marie, Mich	5–6			0.60														*			
Savannah, Ga.	19			0.94														0.22			
Scranton, Pa.	13			0.25														*			
Seattle, Wash.	30			0.61														0.15			
Sheridan, Wyo.	2–3			0.36														*			
Shreveport, La.	11–12	1:50 p. m.	5:45 p. m.	2.36	2:34 p. m.	3:04 p. m.	0.02	0.20	0.43	0.66	0.76	0.82	0.90								
Sioux City, Iowa	30–1			0.33														*			
Southeast Farallon, Cal.	4			1.26																	
Spokane, Wash.	8–9			0.64														0.39			
Springfield, Ill.	24–25			0.42														*			
Springfield, Mo.	4–5			1.19														*			
Syracuse, N. Y.	13			0.55														*			
Tacoma, Wash.	11–12			1.72														*			
Tampa, Fla.	28			0.36														*			
Tatoosh Island, Wash.	11			3.05														0.34			
Taylor, Tex.	4			0.62														0.28			
Thomasville, Ga.	7			1.10														0.57			
Toledo, Ohio	24–25			1.09														0.56			
Tonopah, Nev.	5–7			0.04														*			
Topeka, Kans.	23–24			0.71†														*			
Valentine, Nebr.	1			0.54														*			
Vicksburg, Miss.	11–12			1.42														*			
Walla Walla, Wash.	1–2			0.52														*			
Washington, D. C.	13			2.43														*			
Wichita, Kans.	3–4			0.71														*			
Williston, N. Dak.	10			0.18														*			
Wilmington, N. C.	13	9:15 a. m.	4:55 p. m.	1.50	1:40 p. m.	2:37 p. m.	0.39	0.06	0.15	0.28	0.31	0.42	0.50	0.53	0.60	0.63	0.71	0.82			
Winnemucca, Nev.	1–2			1.06														*			
Wytheville, Va.	12–13			0.90†														*			
Yankton, S. Dak.	1–2			0.71														*			
Yellowstone Park, Wyo.	2			0.46														*			

* Self-register not working. † Estimated. ‡ No precipitation recorded during month.

TABLE III.—*Data furnished by the Canadian Meteorological Service, December, 1909.*

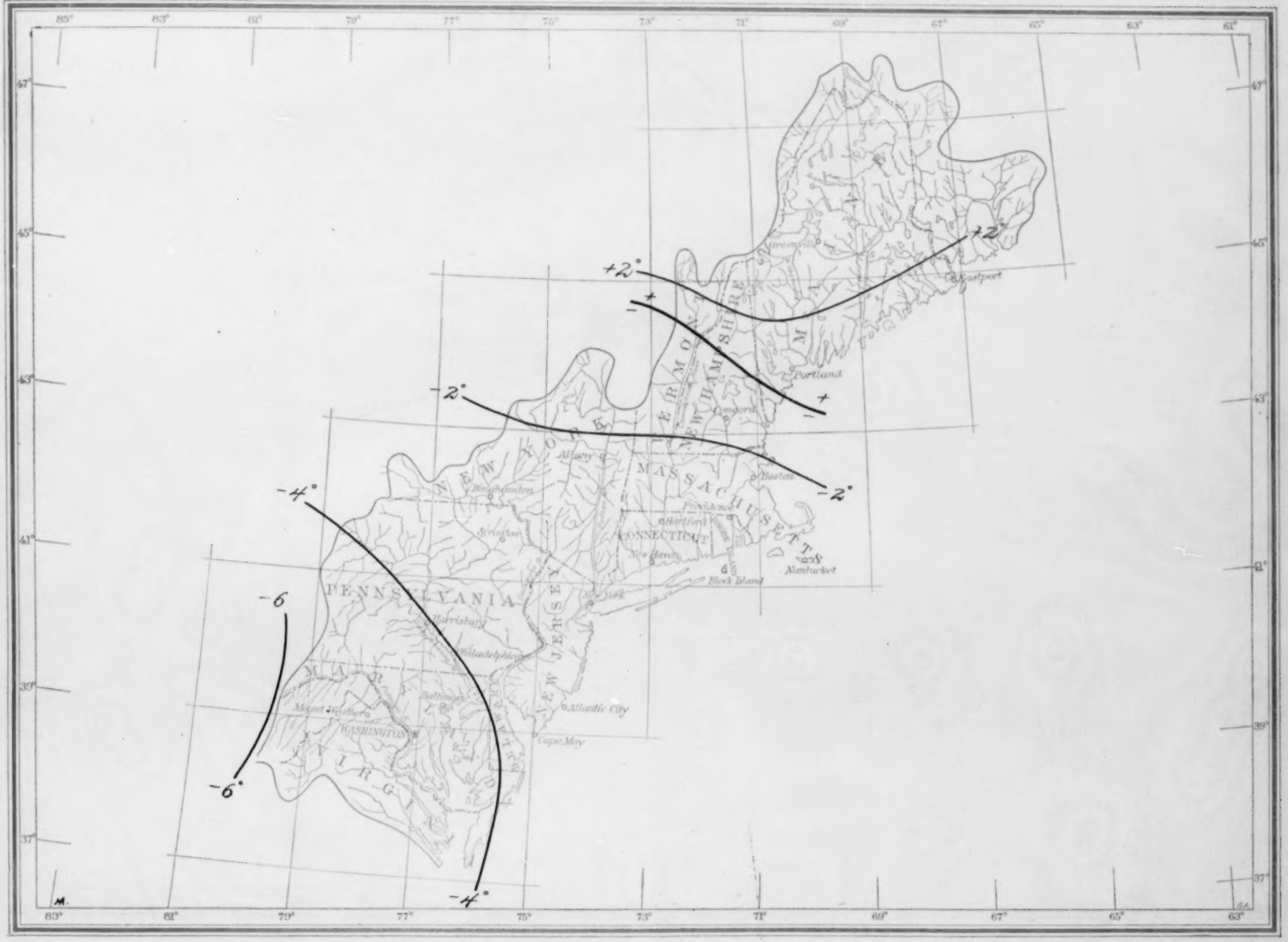
Stations.	Pressure. Actual, reduced to mean of 24 hours.	Pressure. Sea level, reduced to mean of 24 hours.	Pressure. Departure from normal.	Temperature. Mean.	Temperature. Departure from normal.	Temperature. Mean maximum.	Temperature. Mean minimum.	Precipitation. Total.	Precipitation. Departure from normal.	Precipitation. Total snowfall.
	Ins.	*Ins.*	*Ins.*	°	°	°	°	*Ins.*	*Ins.*	*Ins.*
St. Johns, N. F.	29.57	29.71	−.12	34.8	+ 6.1	38.3	31.3	14.05	+9.02	11.0
Sydney, C. B. I.	29.58	29.62	−.27	32.4	+ 4.2	36.5	28.2	10.46	+6.03	29.0
Halifax, N. S.	29.57	29.68	−.28	29.0	+ 1.4	34.1	23.8	2.87	−2.25	15 5
Grand Manan, N. B.	29.68	29.73	−.25	28.0	− 0.3	33.6	22.3	2.10	+2.32	12.7
Yarmouth, N. S.	29.65	29.72	−.26	30.7	0.0	35.1	26.4	1.88	−3.16	8.3
Charlottetown, P. E. I.	29.62	29.66	−.28	28.2	+ 3.9	31.9	24.4	6.44	+2.78	43.8
Chatham, N. B.	29.70	29.72	−.22	23.0	+ 6.0	28.7	17.4	3.87	+0.65	29.0
Father Point, Que.	29.77	29.80	−.15	23.4	+ 8.0	28.0	18.8	3.34	+0.51	24.9
Quebec, Que.	29.50	29.89	−.12	18.5	+ 3.3	23.2	13.8	1.99	−1.70	19.9
Montreal, Que.	29.66	29.88	−.15	21.2	+ 2.9	25.3	17.2	1.39	−2.26	13.2
Rockliffe, Ont.	29.26	29.89	−.12	20.0	+ 5.0	29.2	10.8	3.20	+0.71	31.8
Ottawa, Ont.	29.62	29.96	−.06	19.0	+ 2.0	24.4	13.7	1.80	−1.11	18.0
Kingston, Ont.	29.60	29.94	−.10	23.1	− 0.6	28.2	17.9	3.12	−0.12	8.6
Toronto, Ont.	29.53	29.93	−.12	25.9	− 1.1	31.7	20.2	2.65	−0.26	11.6
White River, Ont.	28.53	29.89	−.08	12.9	+ 3.2	20.1	5.7	0.37	−1.34	2.9
Port Stanley, Ont.	29.30	29.96	−.11	25.1	− 3.3	31.5	18.7	2.99	+0.57	12.1
Southampton, Ont.	29.20	.....	....	25.5	− 1.2	31.8	19.2	5.80	+1.82	47.6
Parry Sound, Ont.	29.18	29.91	−.10	22.3	+ 1.1	28.5	16.0	6.20	+1.72	58.0
Port Arthur, Ont.	29.24	29.97	−.02	15.6	+ 2.4	22.9	8.3	1.20	+0.33	3.6
Winnipeg, Man.	29.24	30.14	+.12	2.5	− 1.6	9.8	− 4.8	3.99	+3 08	39 9
Minnedosa, Man.	28.19	30.13	+.11	3.3	− 2.4	11.6	− 5.0	1.22	+0.60	12.2
Qu' Appelle, Assin.	27.72	30.11	+.11	2.4	− 5.0	10.0	− 5 2	3.11	+2.59	31.1
Medicine Hat, Alberta.	27.79	30.19	+.22	12.6	− 5.6	22.0	3.2	0.79	+0.24	7.9
Swift Current, Sask.	27.46	30.29	+.21	6.8	− 9.2	14.4	− 0.7	0.29	−0.49	2.7
Calgary, Alberta.	26.44	30.16	+.22	13.9	− 4.3	21.2	6.6	0.44	−0.15	4.4
Banff, Alberta	25.37	30.22	+.28	10.0	− 9.1	18.0	1.9	1.02	−0.19	10.2
Edmonton, Alberta.	27.74	30.16	+.23	10.3	− 2.8	20.2	0.4	0.34	−0.36	3.4
Prince Albert, Sask.	28.48	30.14	+.13	2.7	− 0.1	10.1	− 4.7	1.90	+1.16	19.0
Battleford, Sask.	28.33	30.18	+.19	4.0	− 1.4	10.7	− 2.8	0.07	−0 25	0.7
Kamloops, B. C.	28.86	30.19	+.25	21.3	− 7.6	25.7	17.0	0.30	−0.48	3.0
Victoria, B. C.	29.98	30.08	+.11	36.6	− 4.6	40.0	33.3	3.76	−4.22	0 8
Barkerville, B. C.	25.62	30.10	+.22	11.6	− 9.3	16.7	6.5	3.39	+0.22	33.9
Dawson, Yukon	28.96	.....	.....	−13.5	.....	−7.9	−19.0	1.17	.	11.7
Hamilton, Bermuda	29.78	29.95	−.17	61.5	− 3.2	66.7	56.3	5.44	+0.95	0.0

Climatological Districts of the United States.



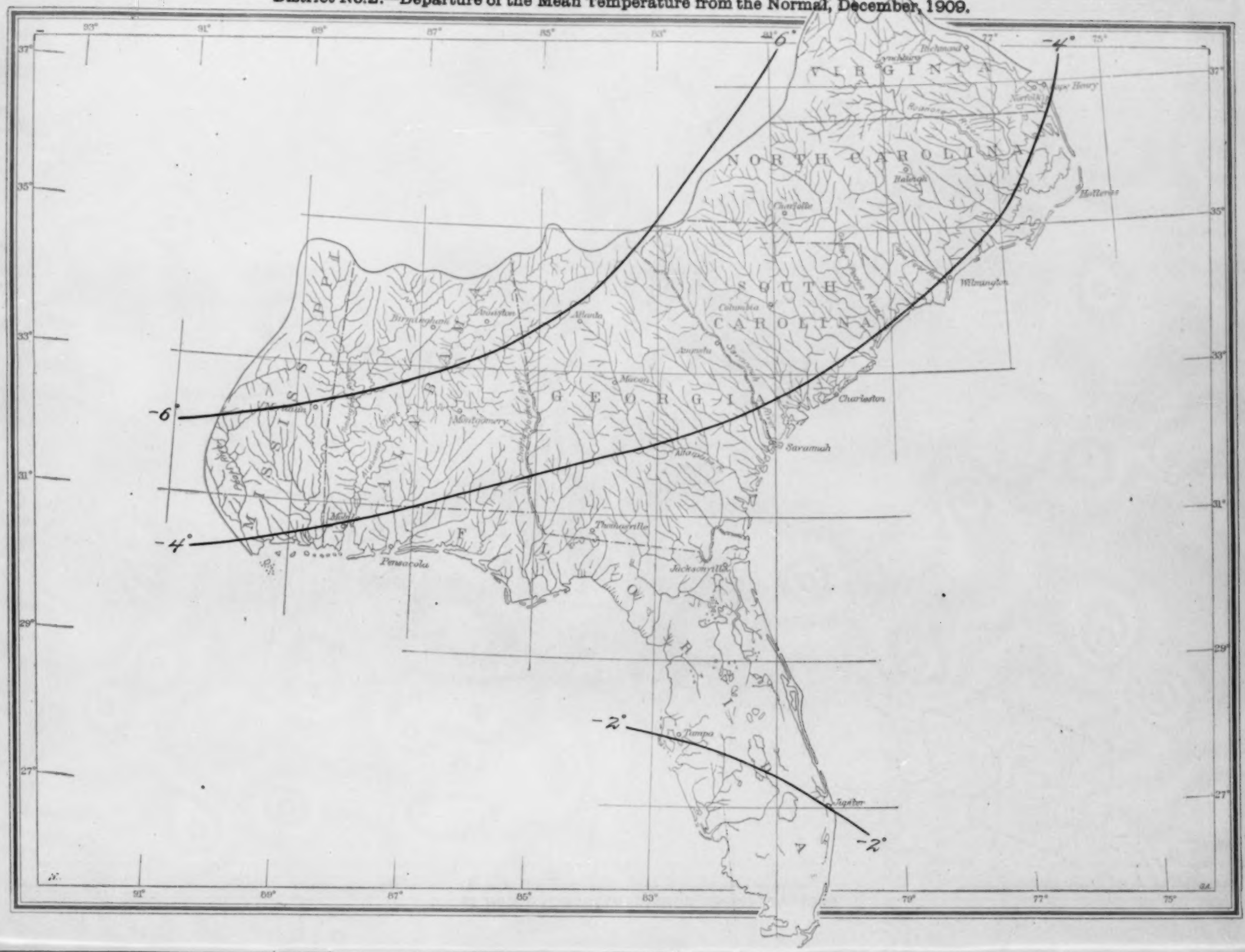
District No. 1.—Total Precipitation, December, 1909.

District No. 1.—Departure of the Mean Temperature from the Normal, December, 1909.

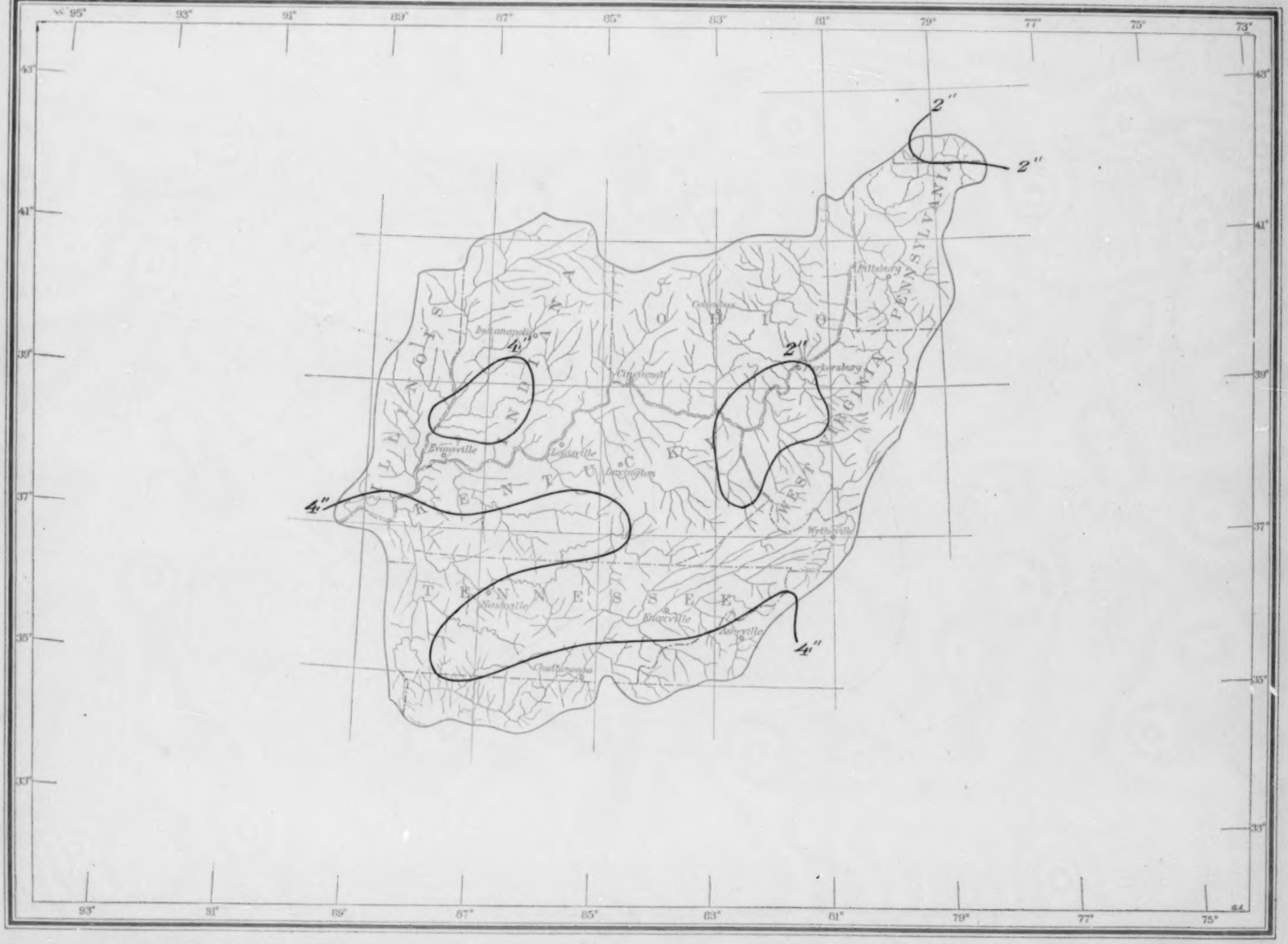


District No. 2.—Total Precipitation, December, 1909.

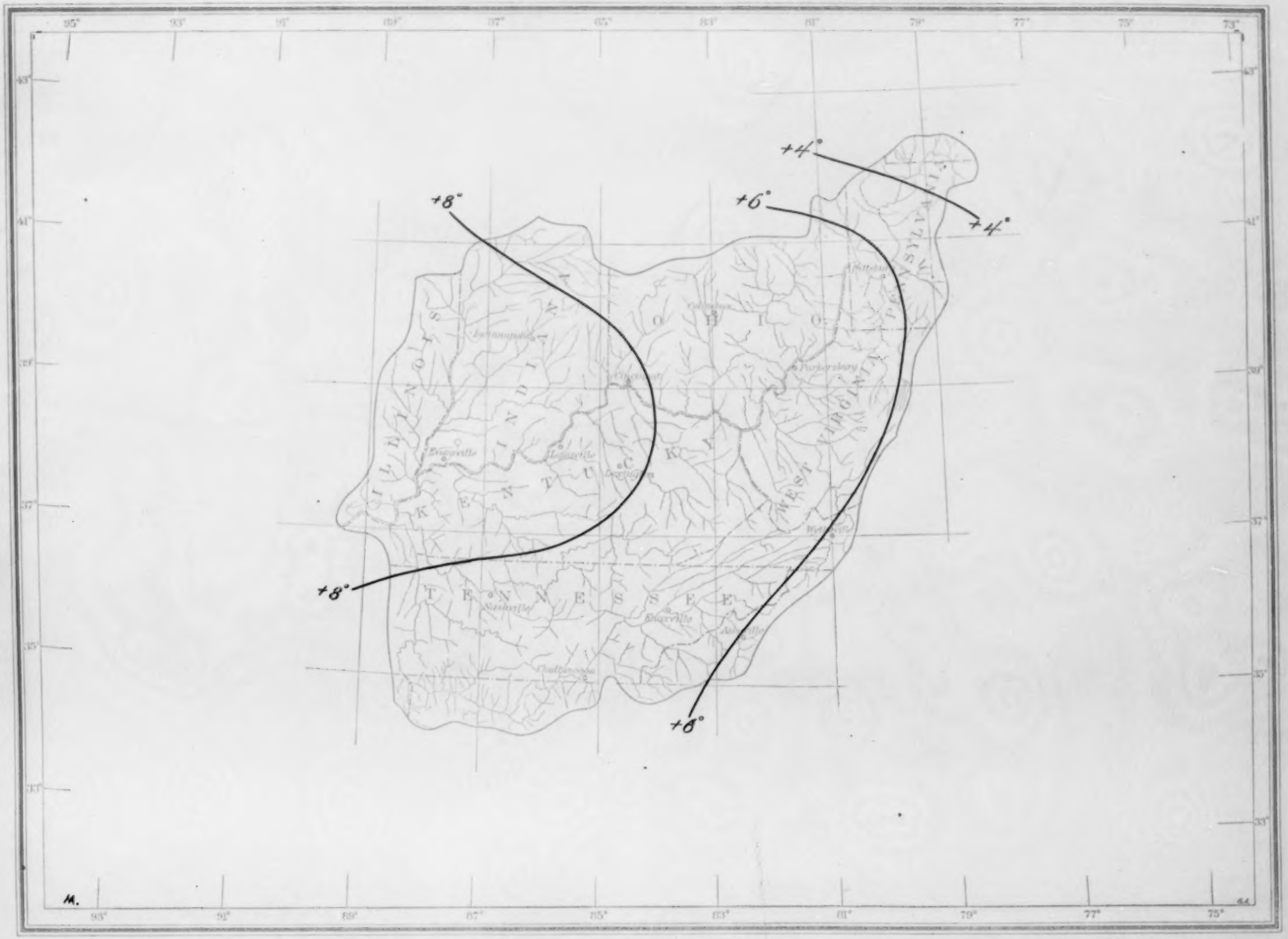
District No.2.—Departure of the Mean Temperature from the Normal, December, 1909.



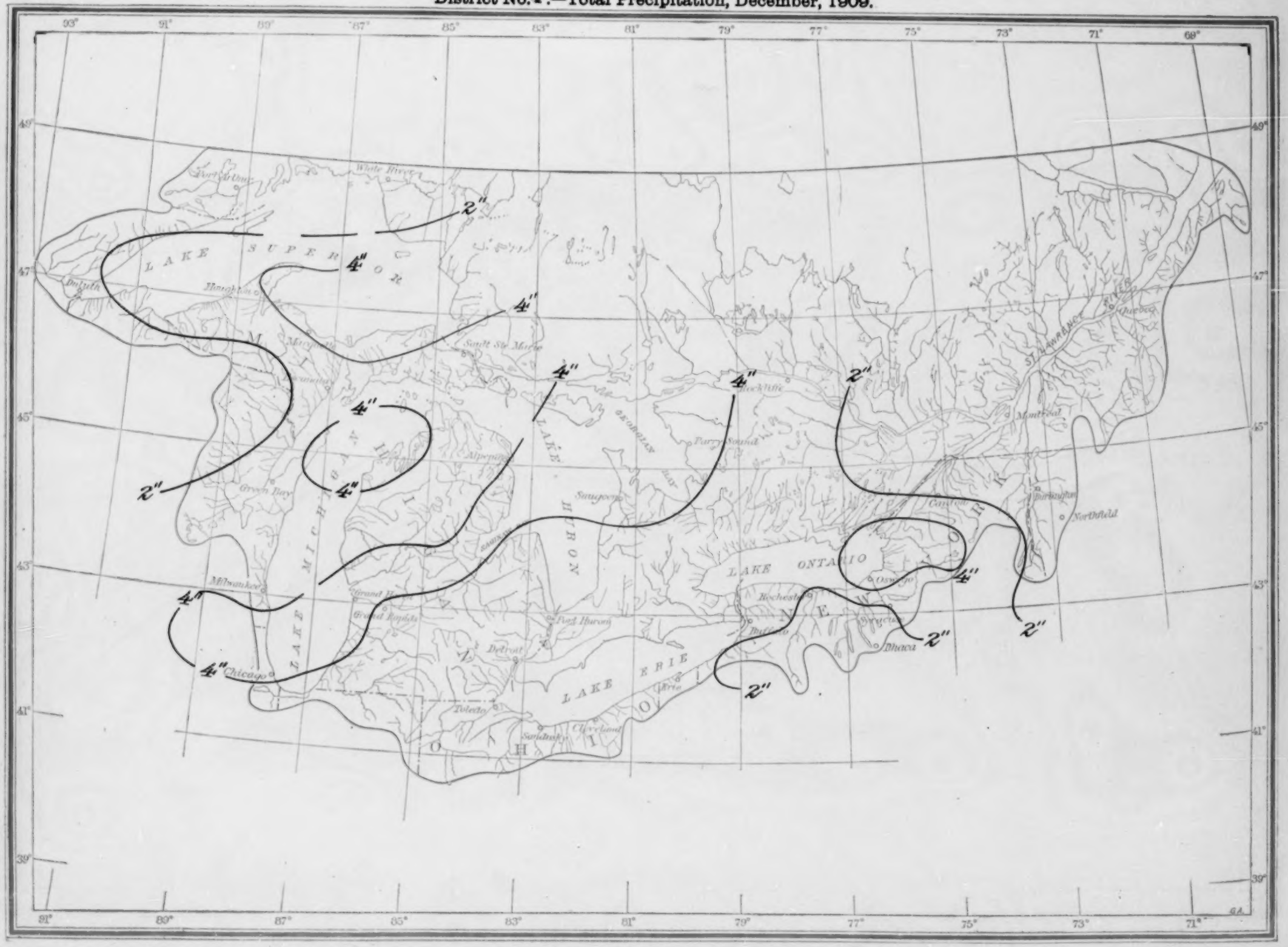
District No. 3.—Total Precipitation, December, 1909.



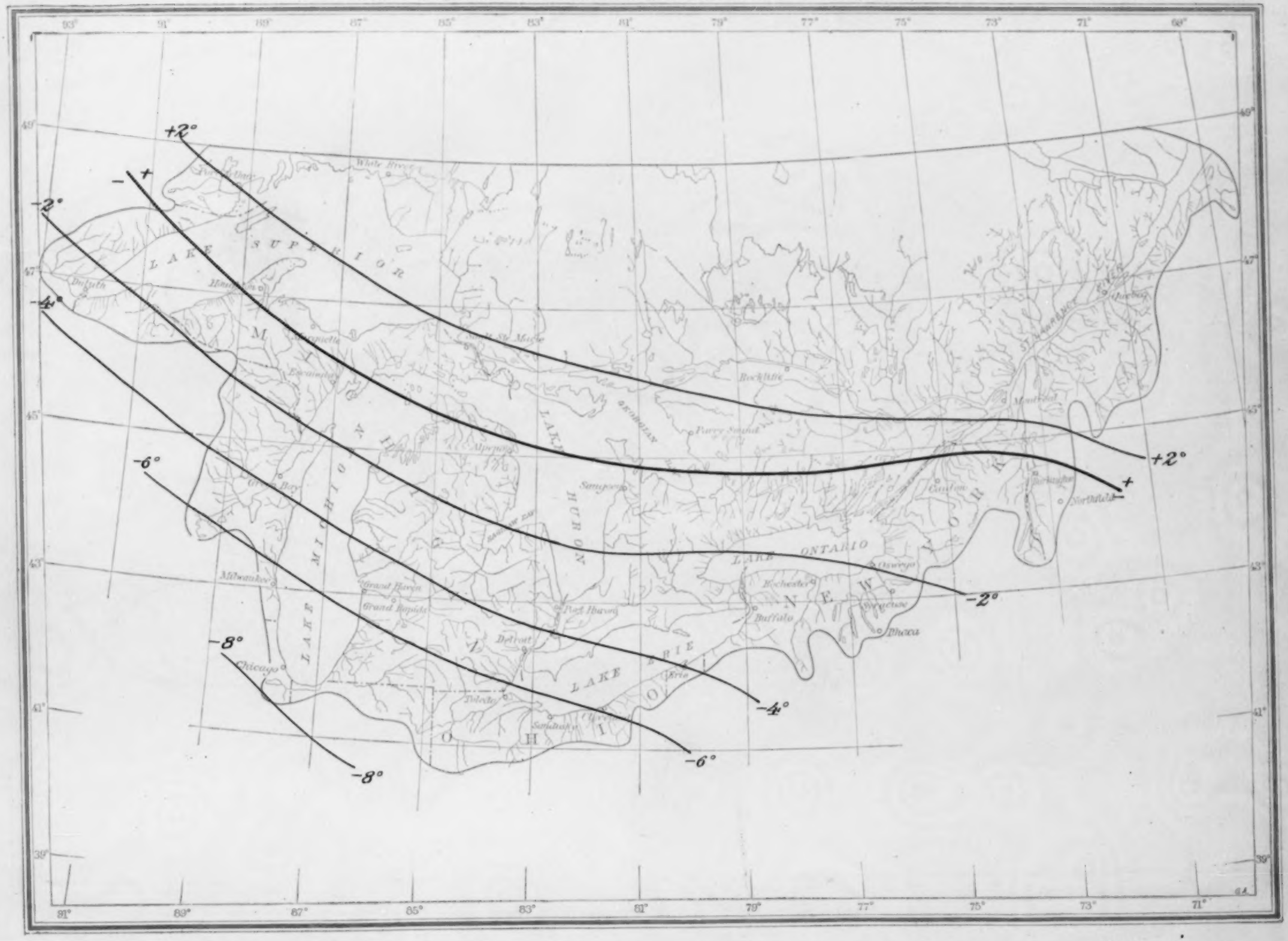
District No.3.—Departure of the Mean Temperature from the Normal, December, 1909.



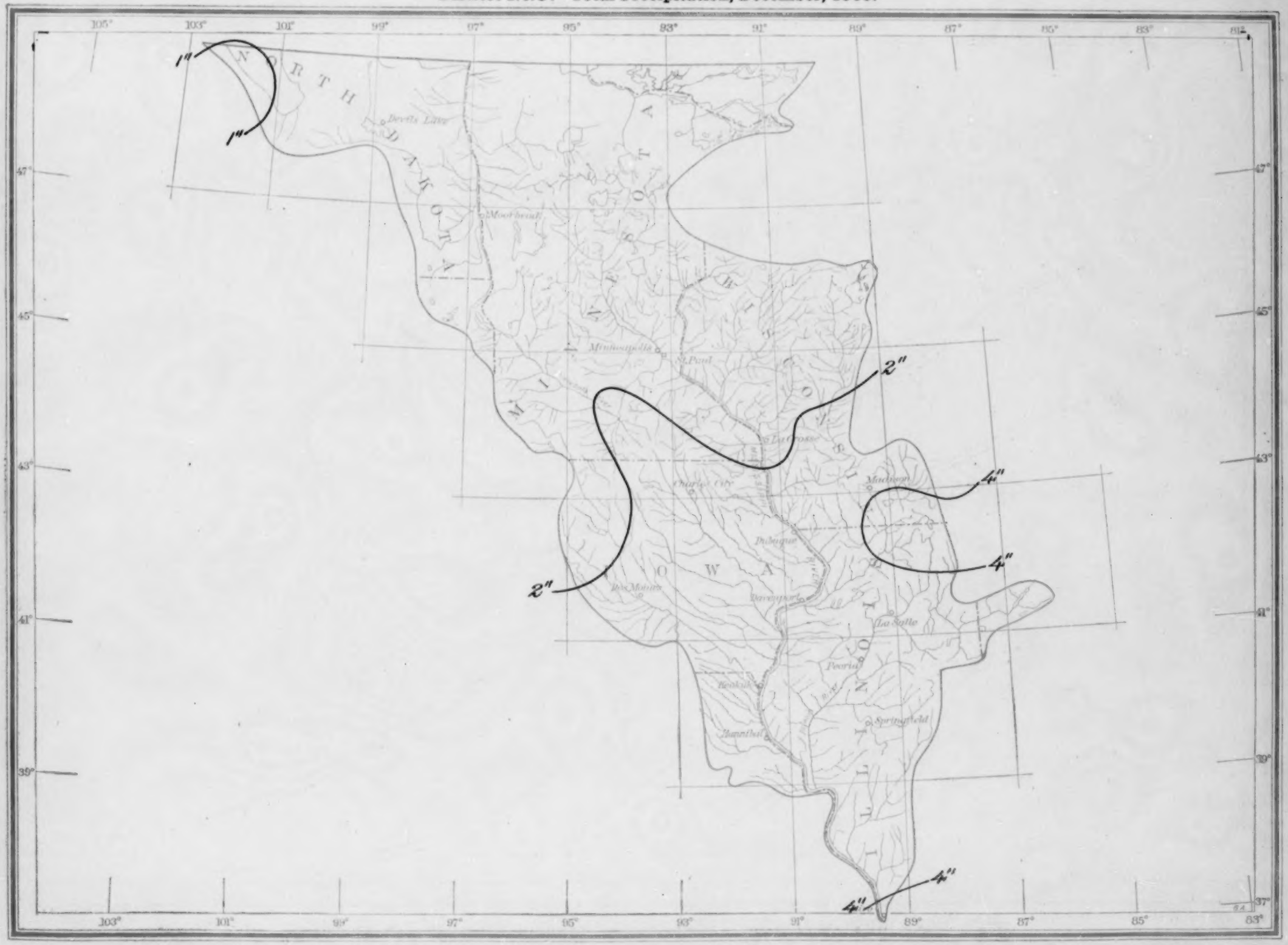
District No.4 .—Total Precipitation, December, 1909.



District No.4.—Departure of the Mean Temperature from the Normal, December, 1909.



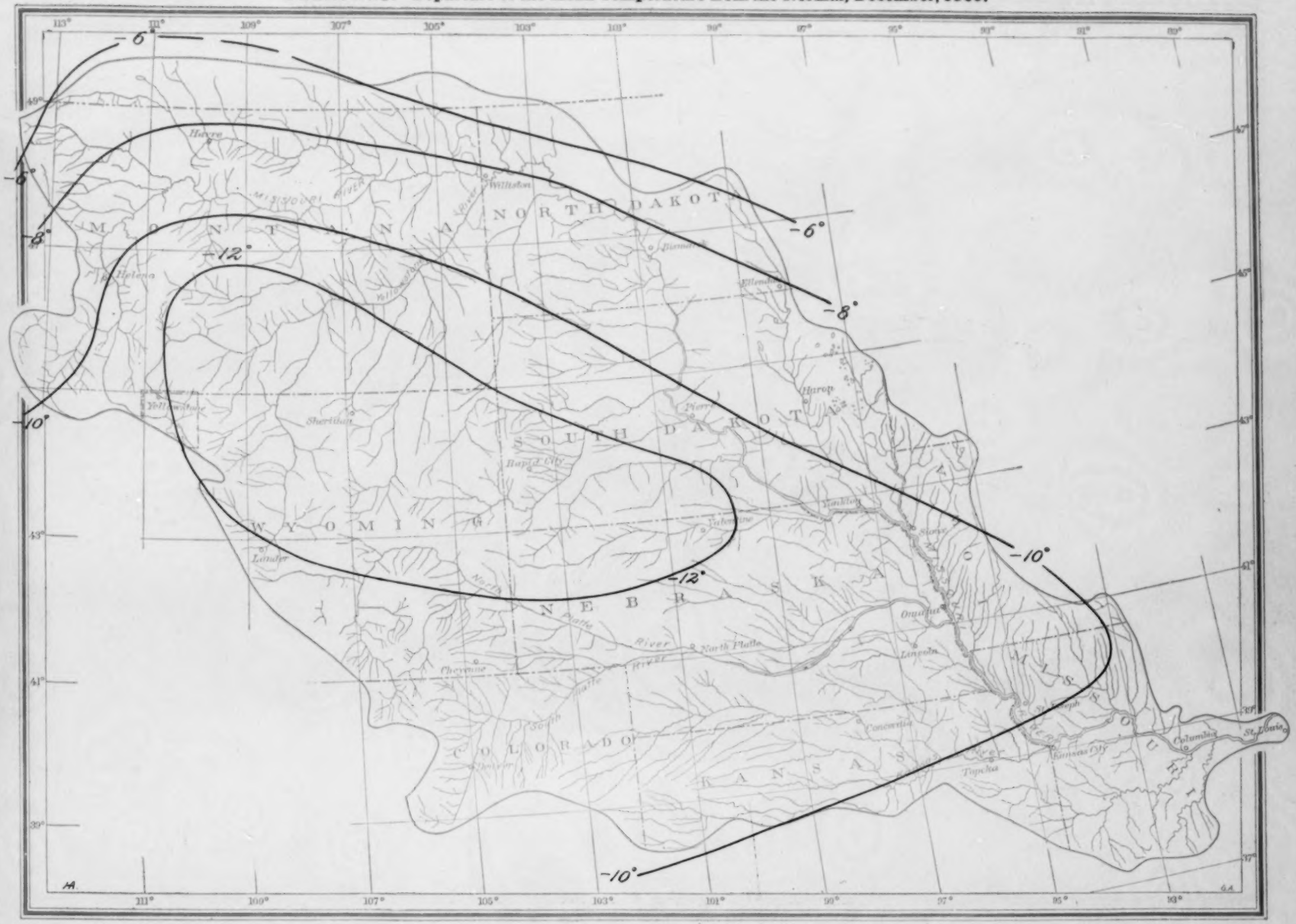
District No. 5.—Total Precipitation, December, 1909.



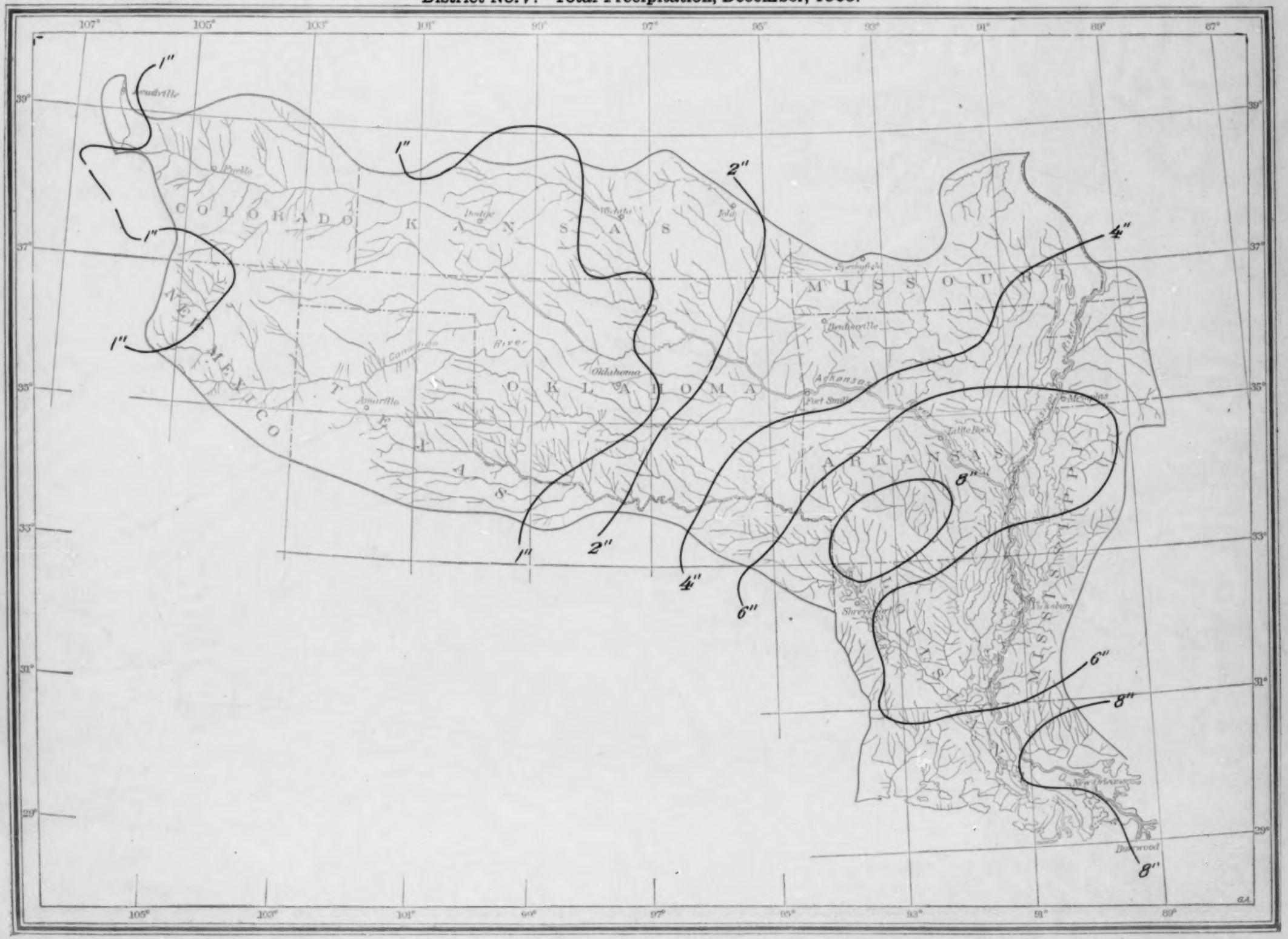
District No.5.—Departure of the Mean Temperature from the Normal, December, 1909.

District No. 6.—Total Precipitation, December, 1909.

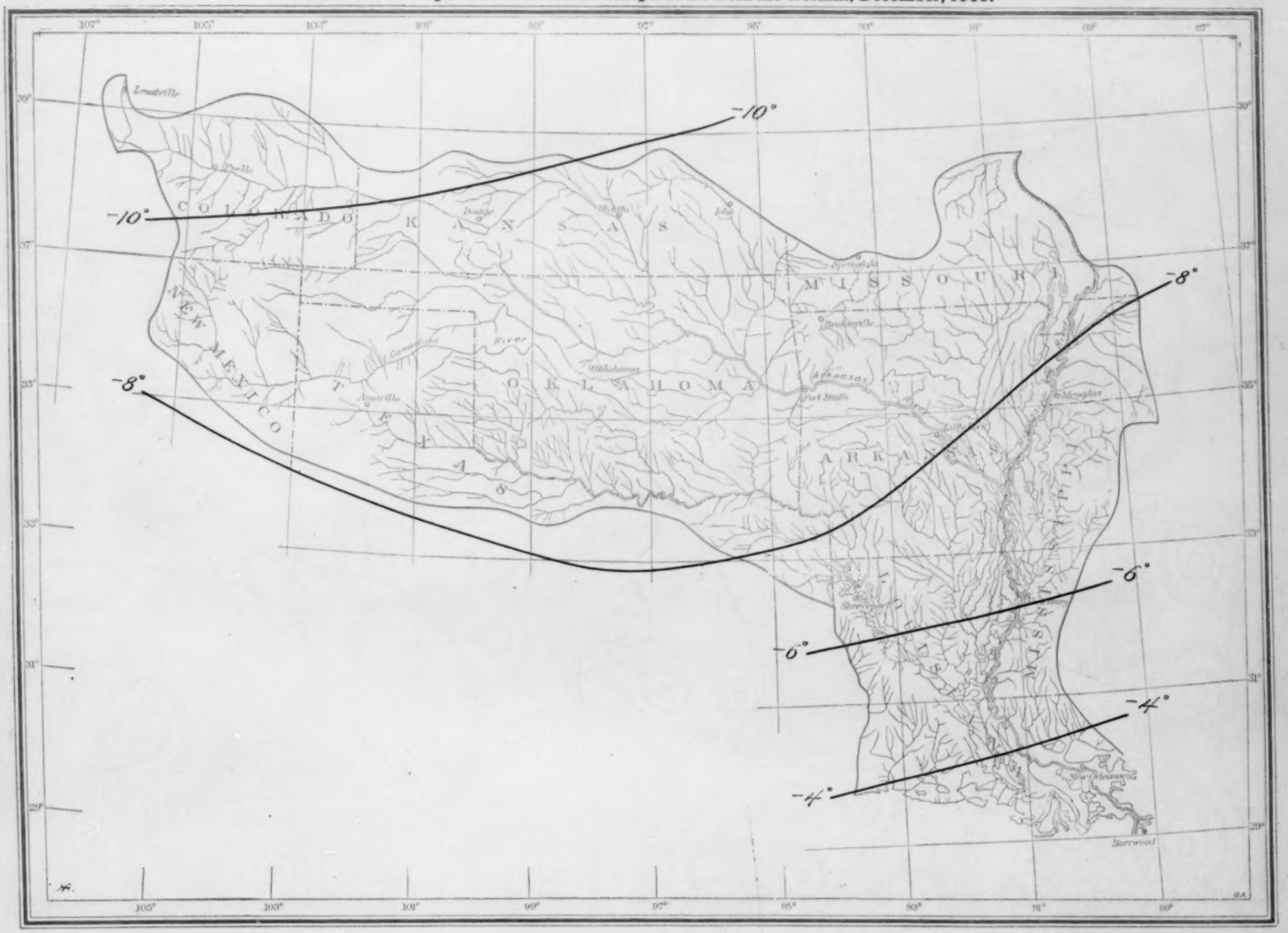
District No. 6.—Departure of the Mean Temperature from the Normal, December, 1909.



District No. 7.—Total Precipitation, December, 1909.

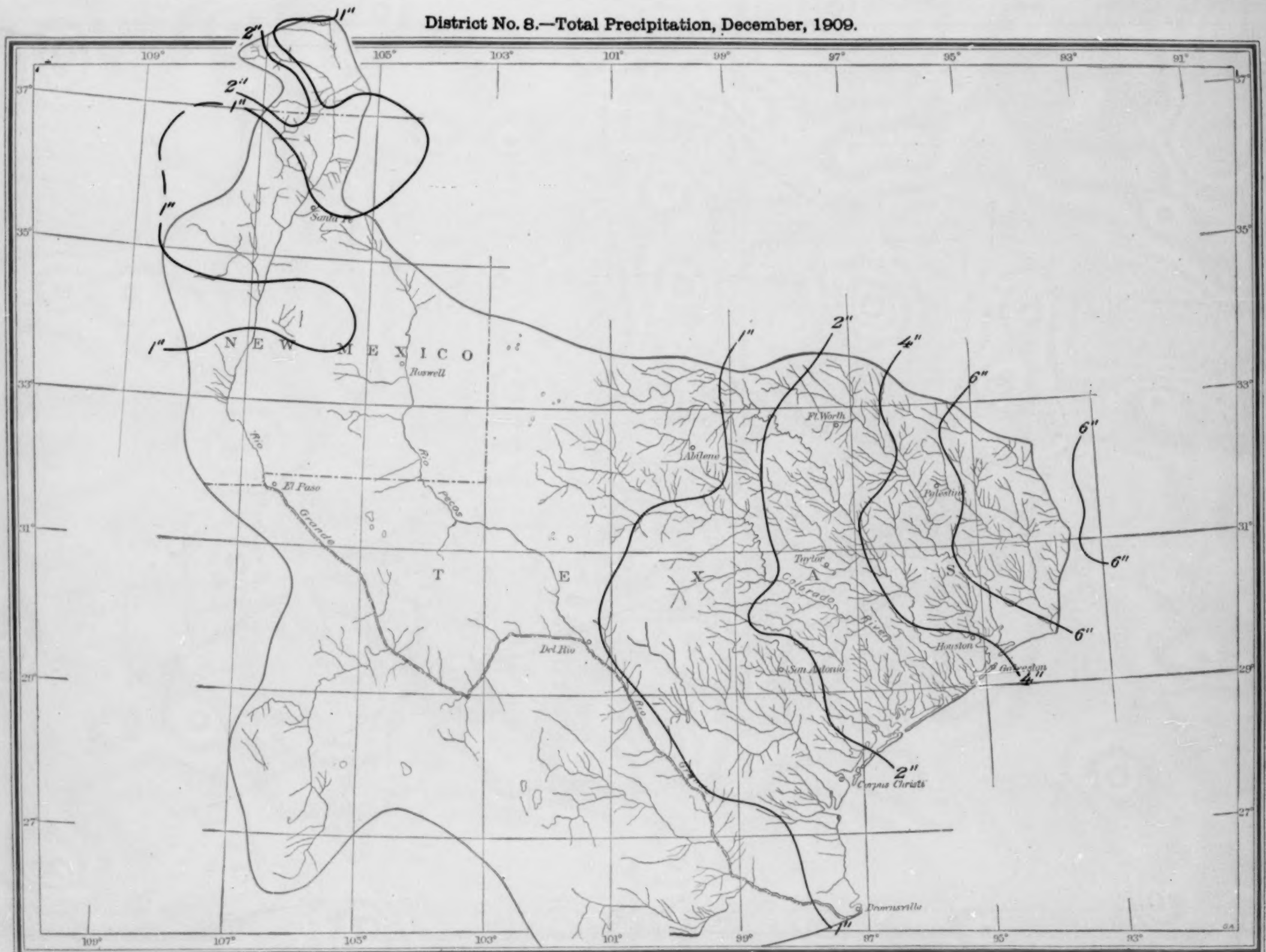


District No. 7.—Departure of the Mean Temperature from the Normal, December, 1909.

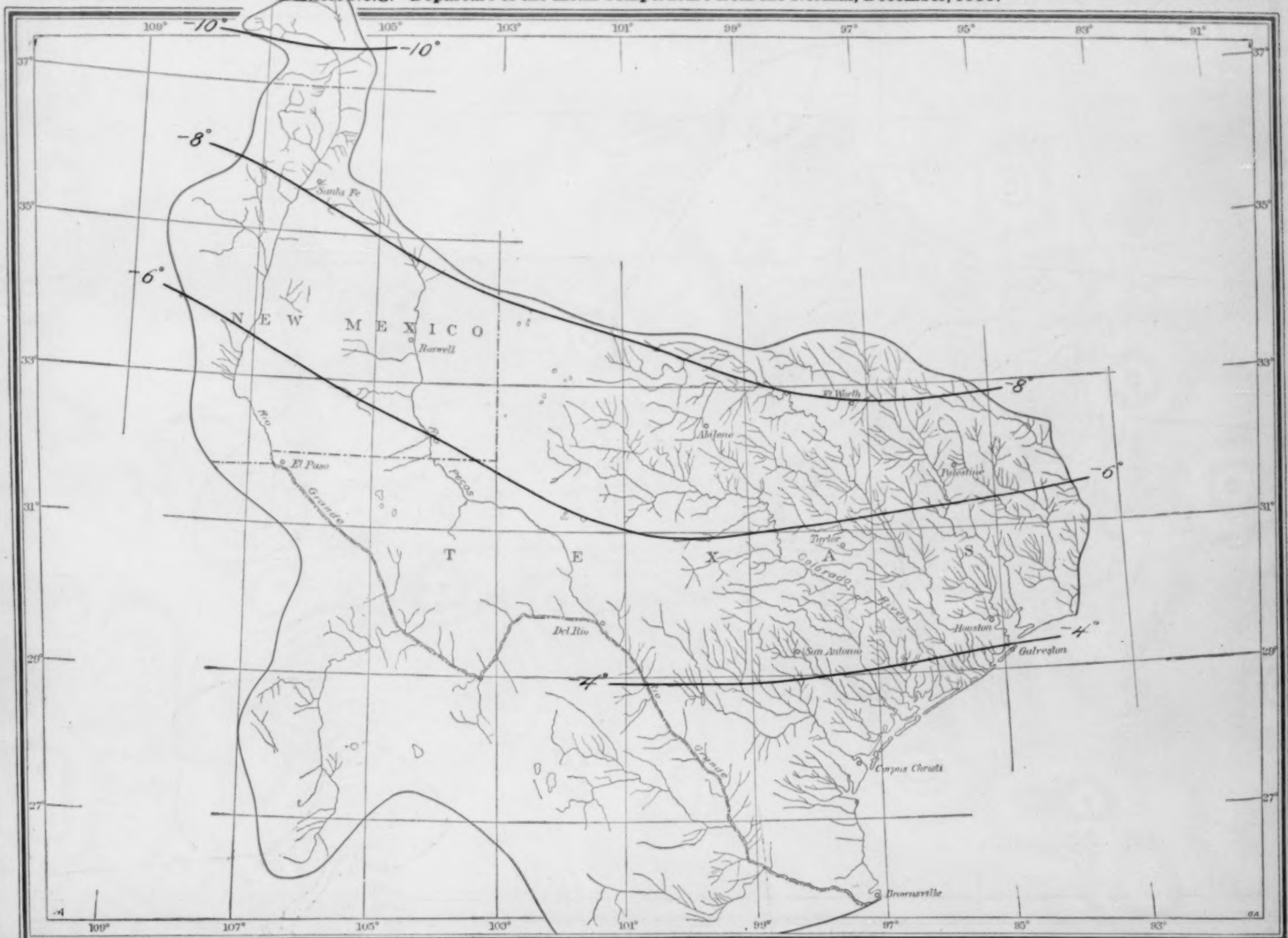


District No. 8.—Total Precipitation, December, 1909.

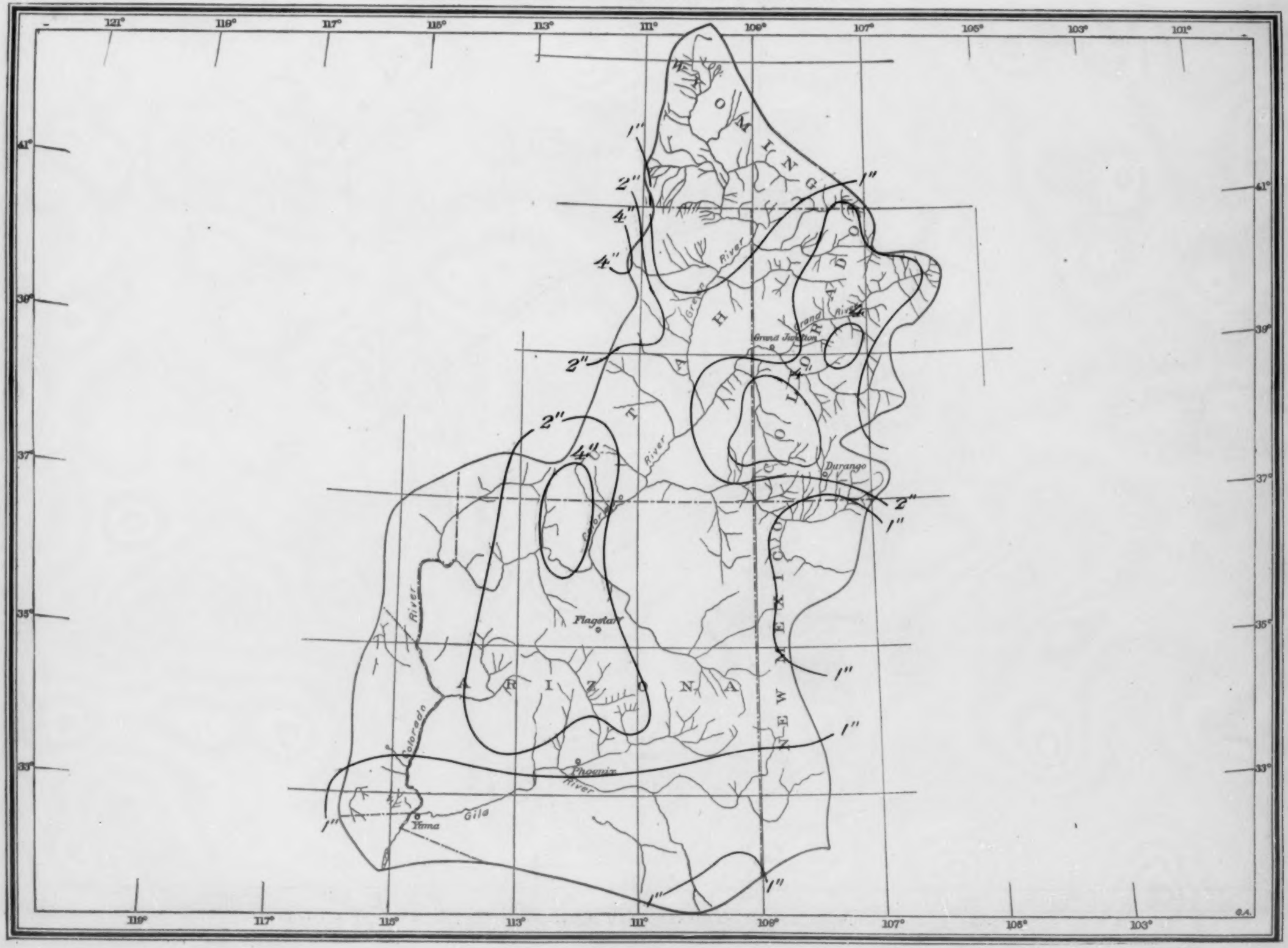
District No. 8.—Total Precipitation, December, 1909.



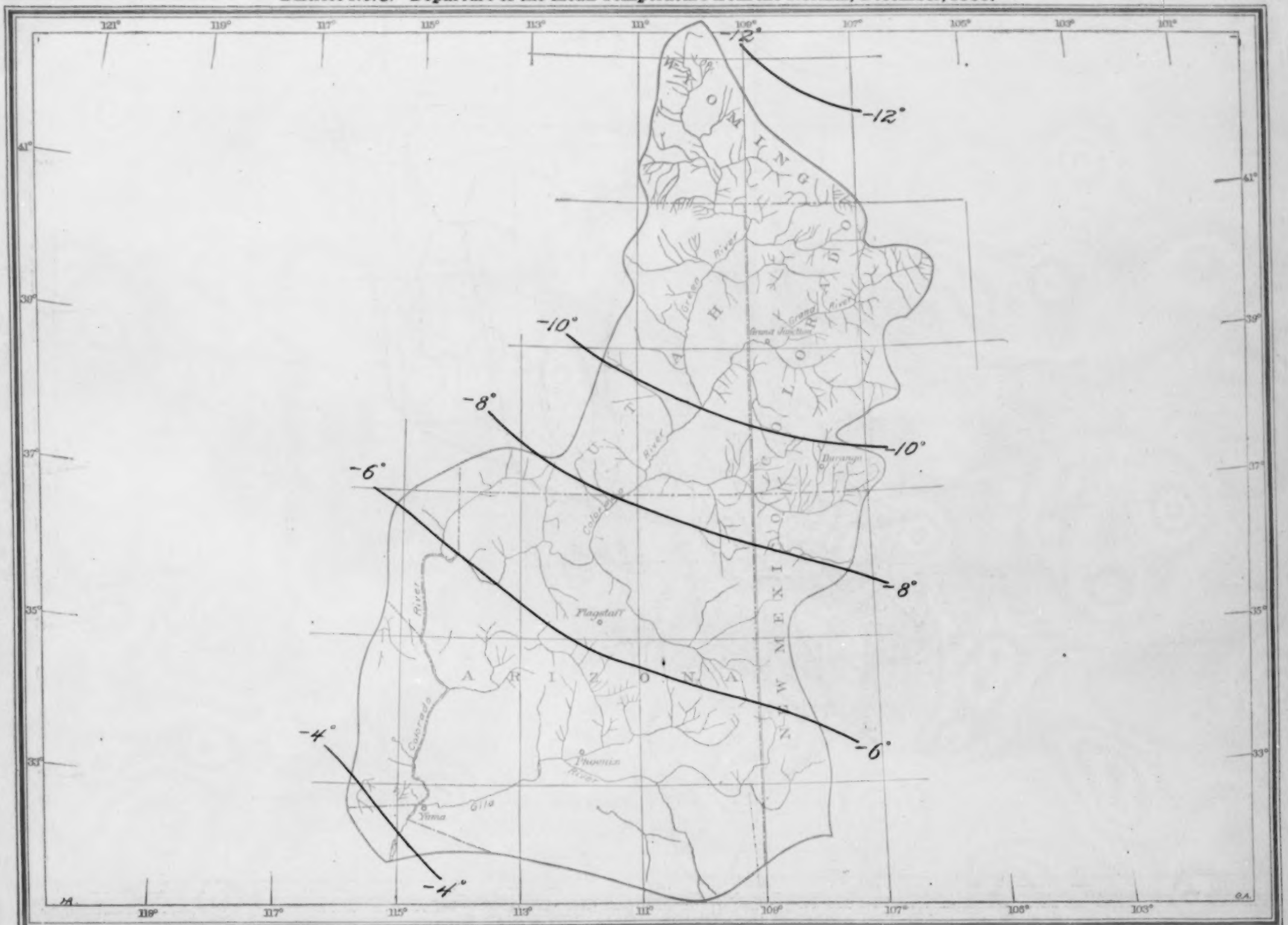
District No. 8.—Departure of the Mean Temperature from the Normal, December, 1909.



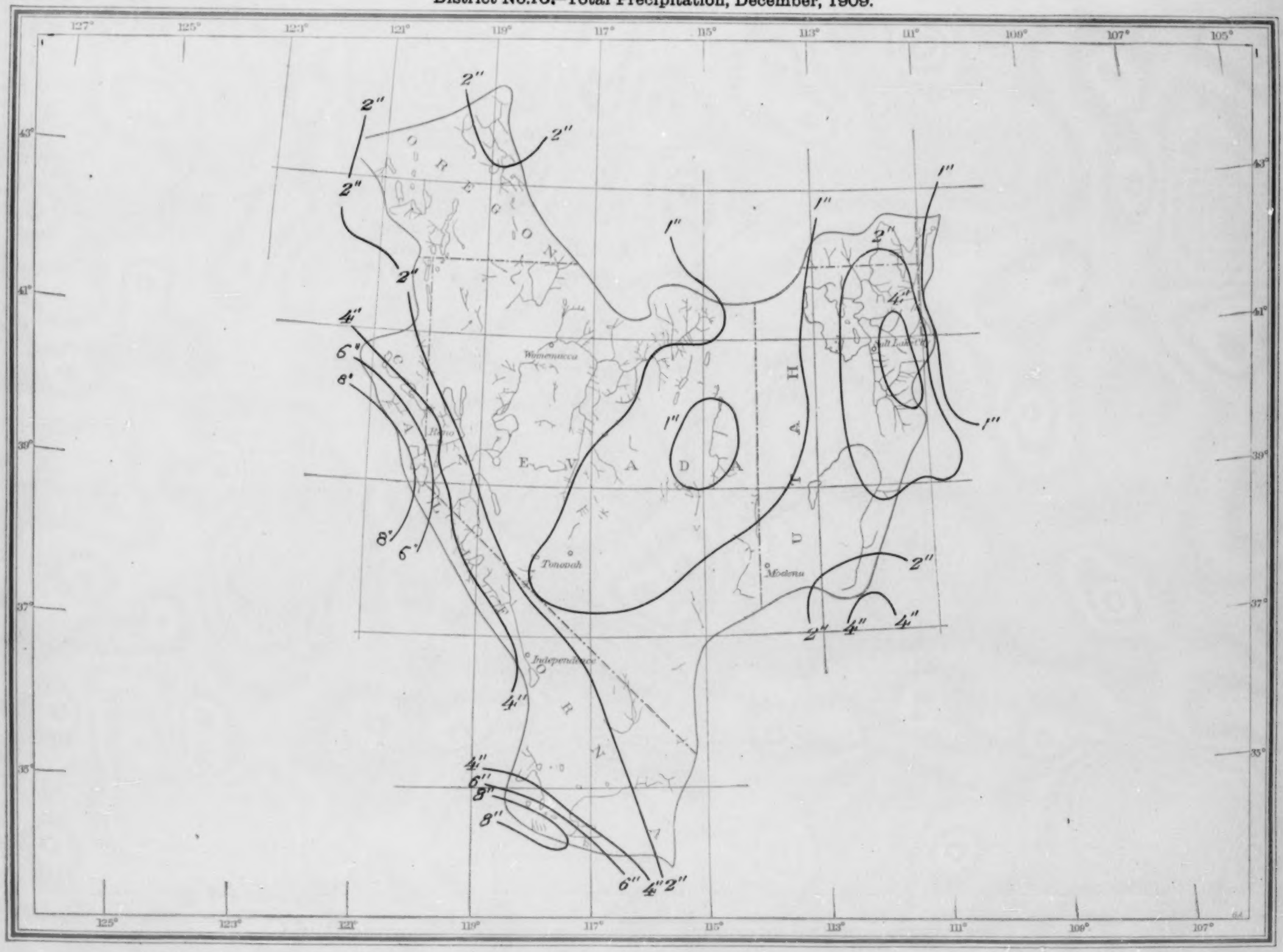
District No. 9.—Total Precipitation, December, 1909.



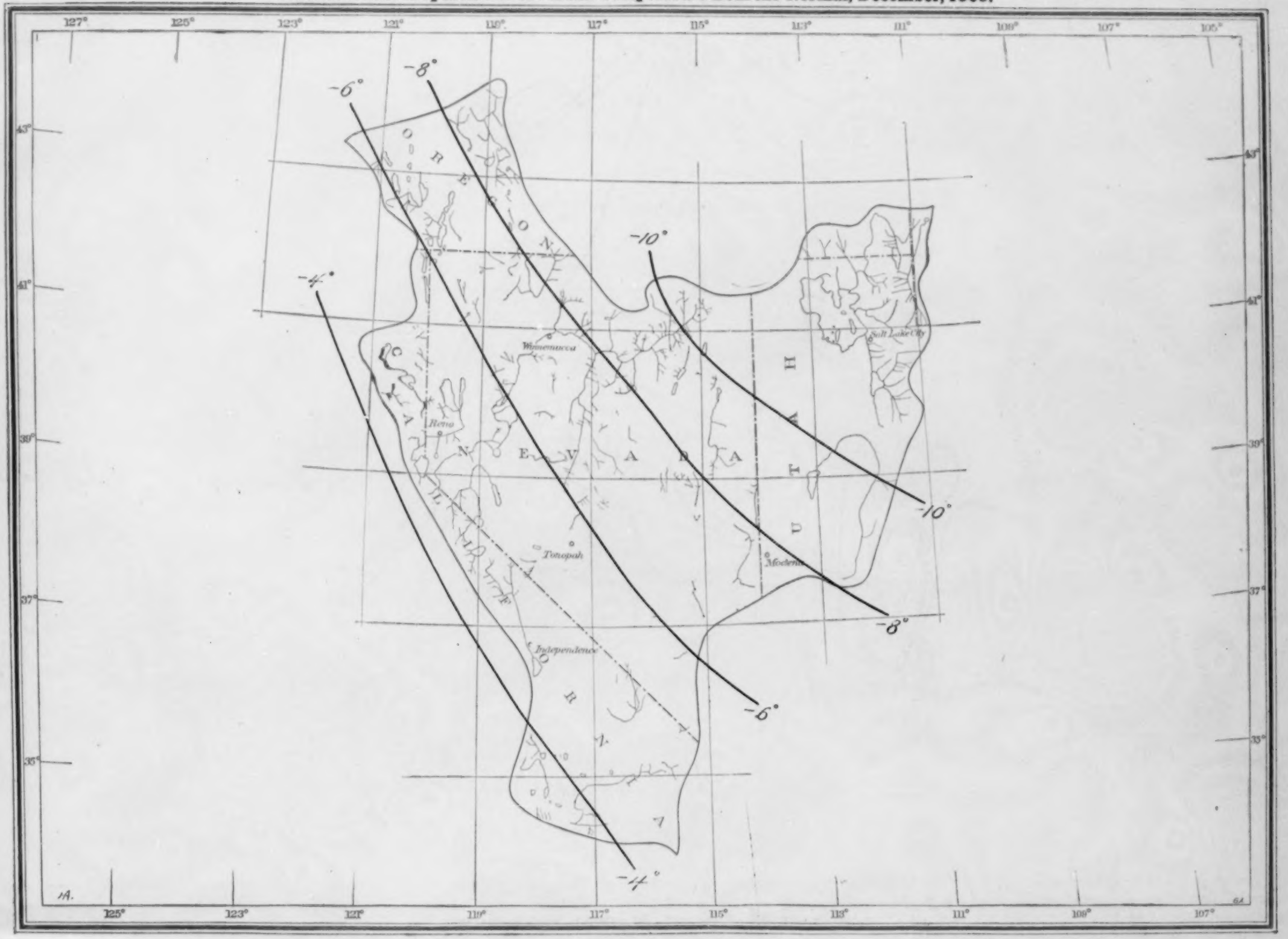
District No. 9.—Departure of the Mean Temperature from the Normal, December, 1909.



District No.10.—Total Precipitation, December, 1909.

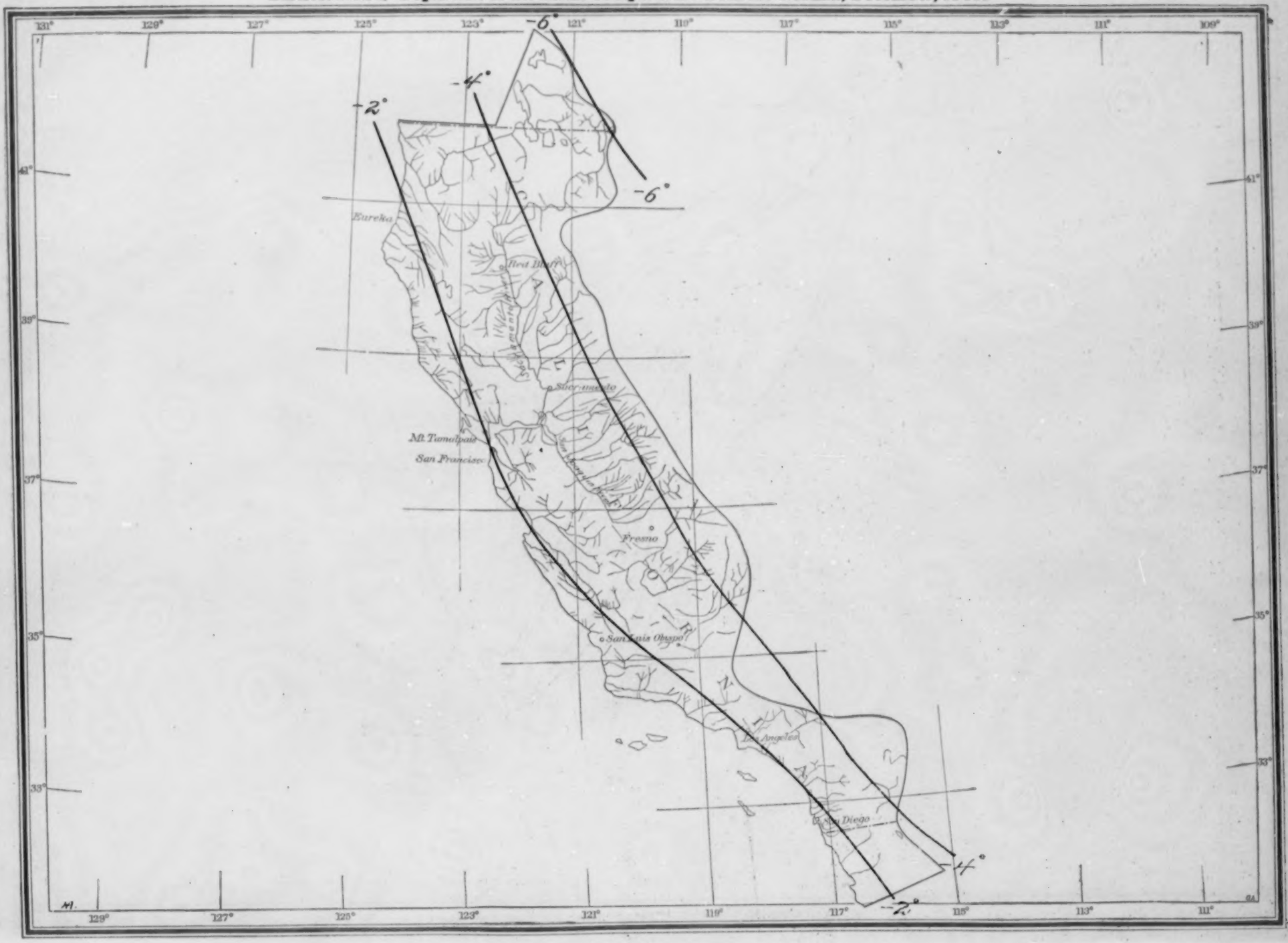


District No.10.—Departure of the Mean Temperature from the Normal, December, 1909.

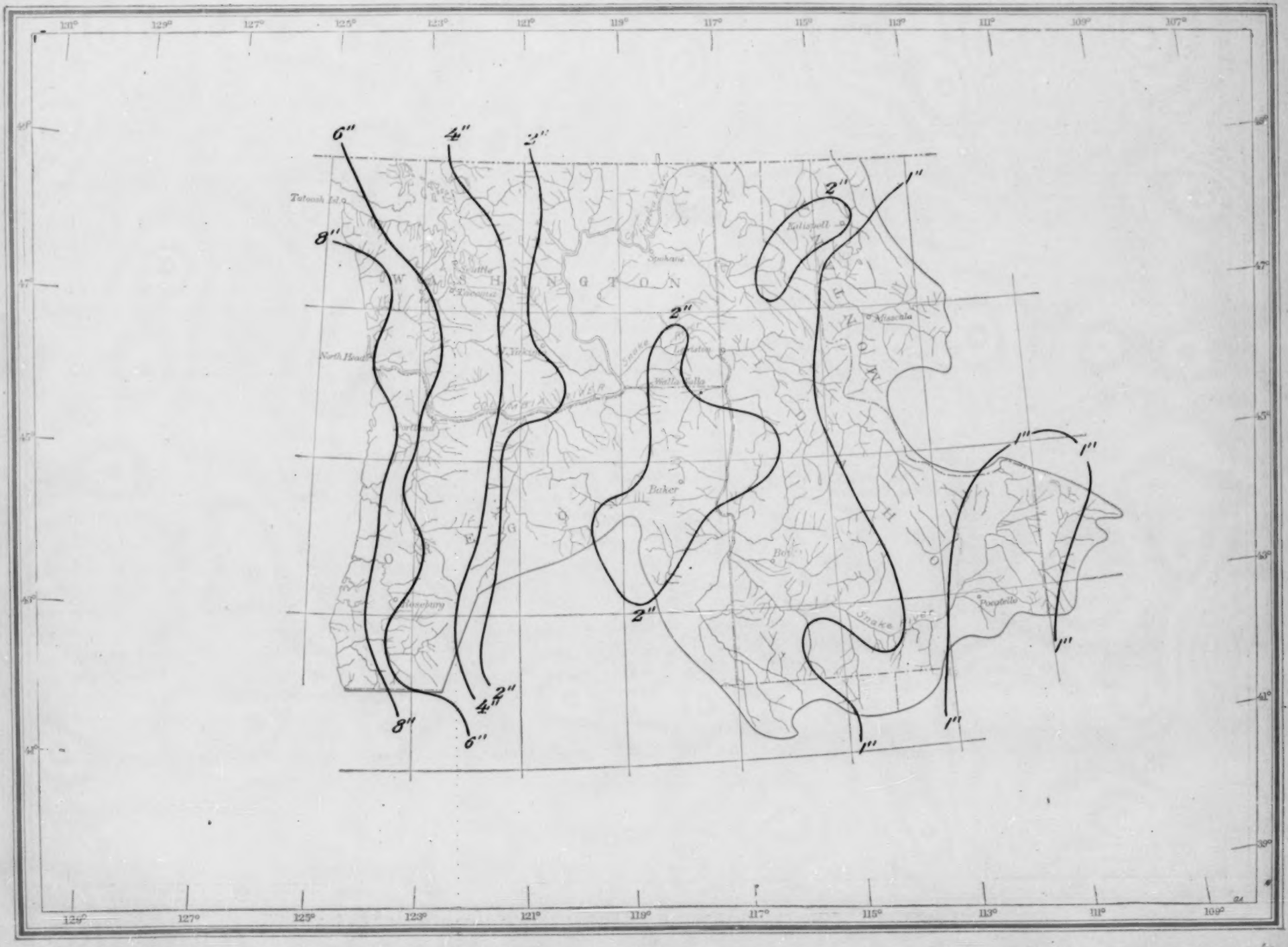


District No. 11.—Total Precipitation, December, 1909.

District No. 11.—Departure of the Mean Temperature from the Normal, December, 1909.



District No.12.—Total Precipitation, December, 1909.



District No.12.—Departure of the Mean Temperature from the Normal, December, 1909.

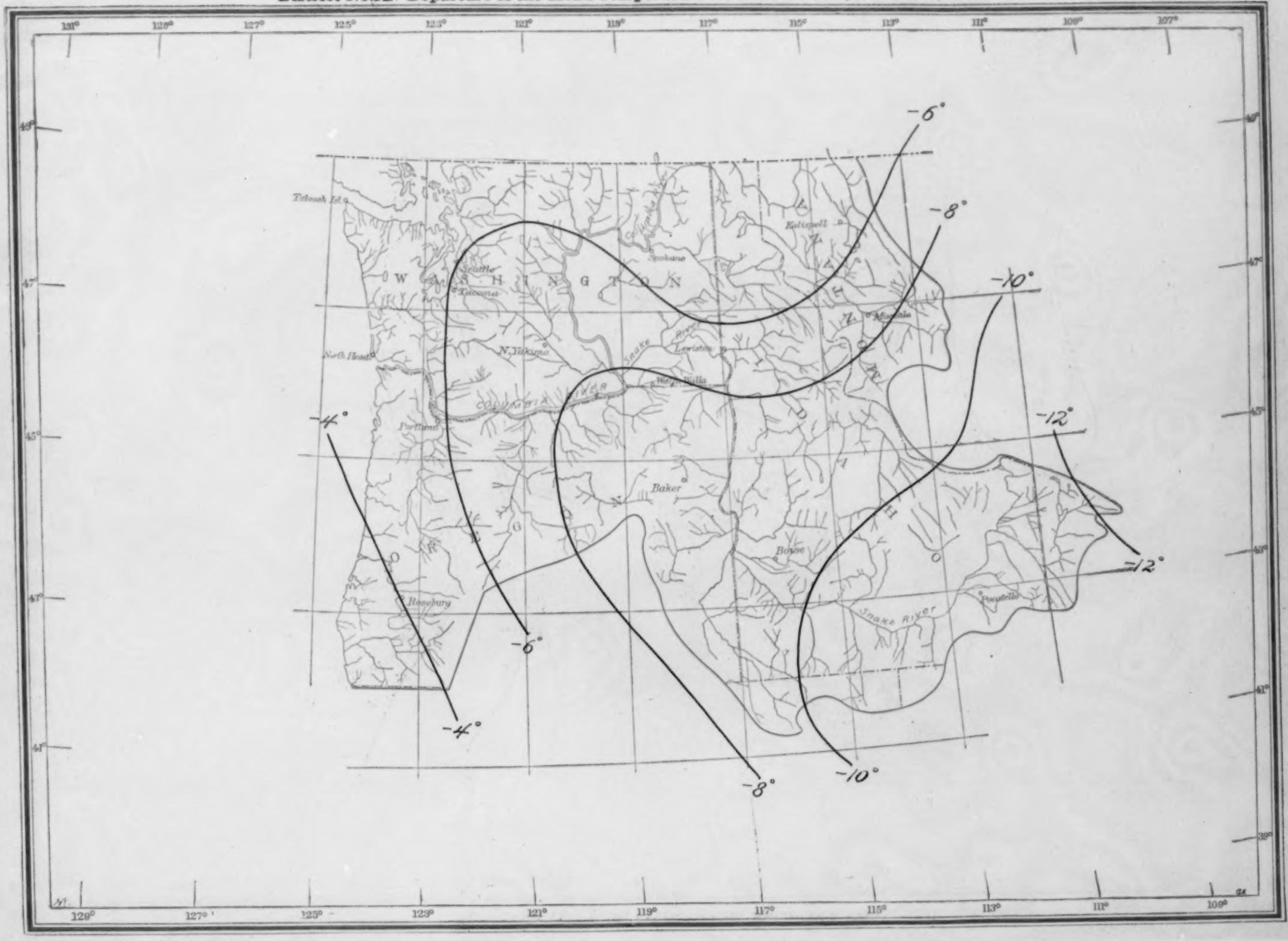


Chart I. Hydrographs of Several Principal Rivers, December, 1909.

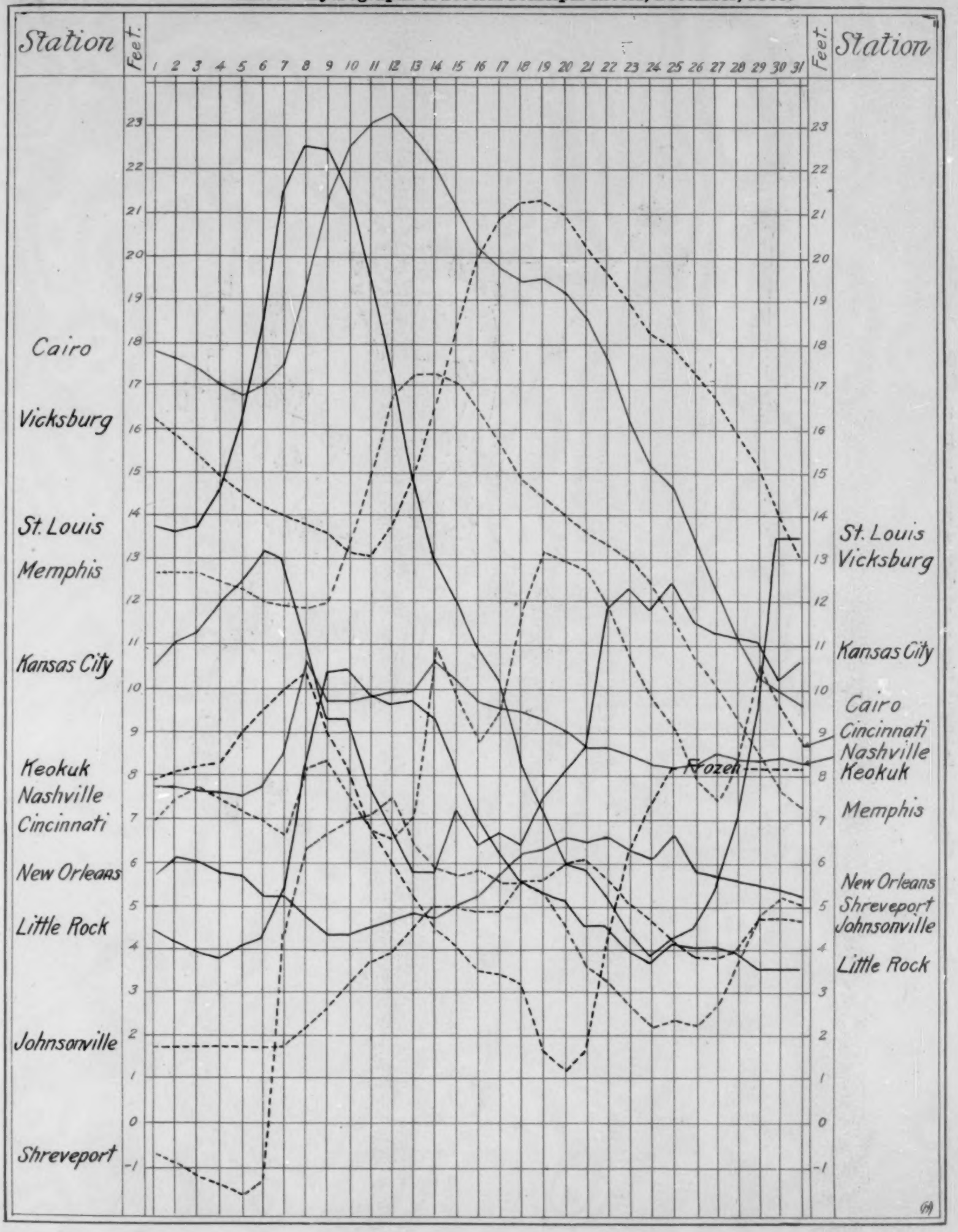
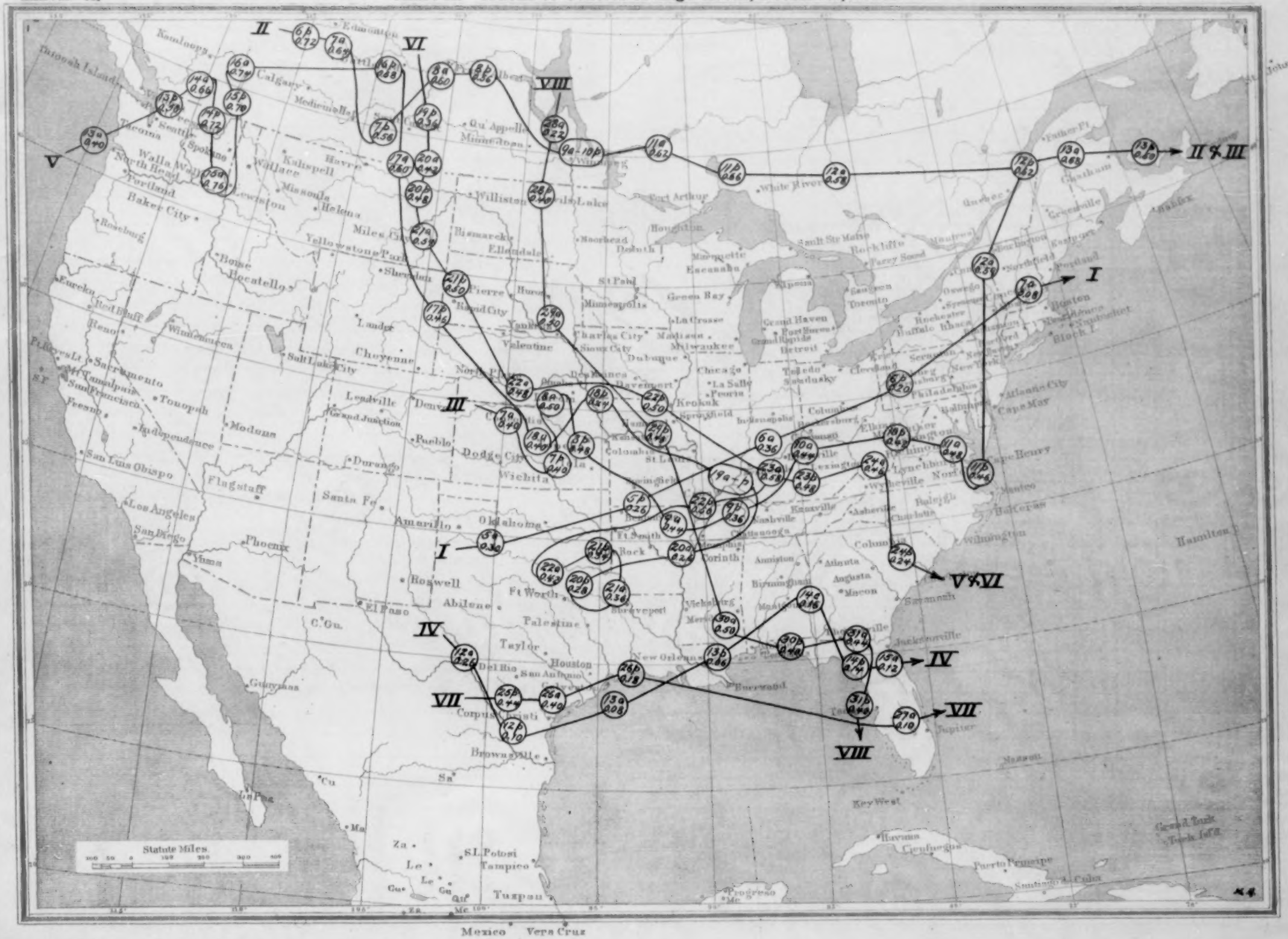


Chart II. Tracks of Centers of High Areas, December, 1909.



Barkerville

Chart III. Tracks of Centers of Low Areas, December, 1909.

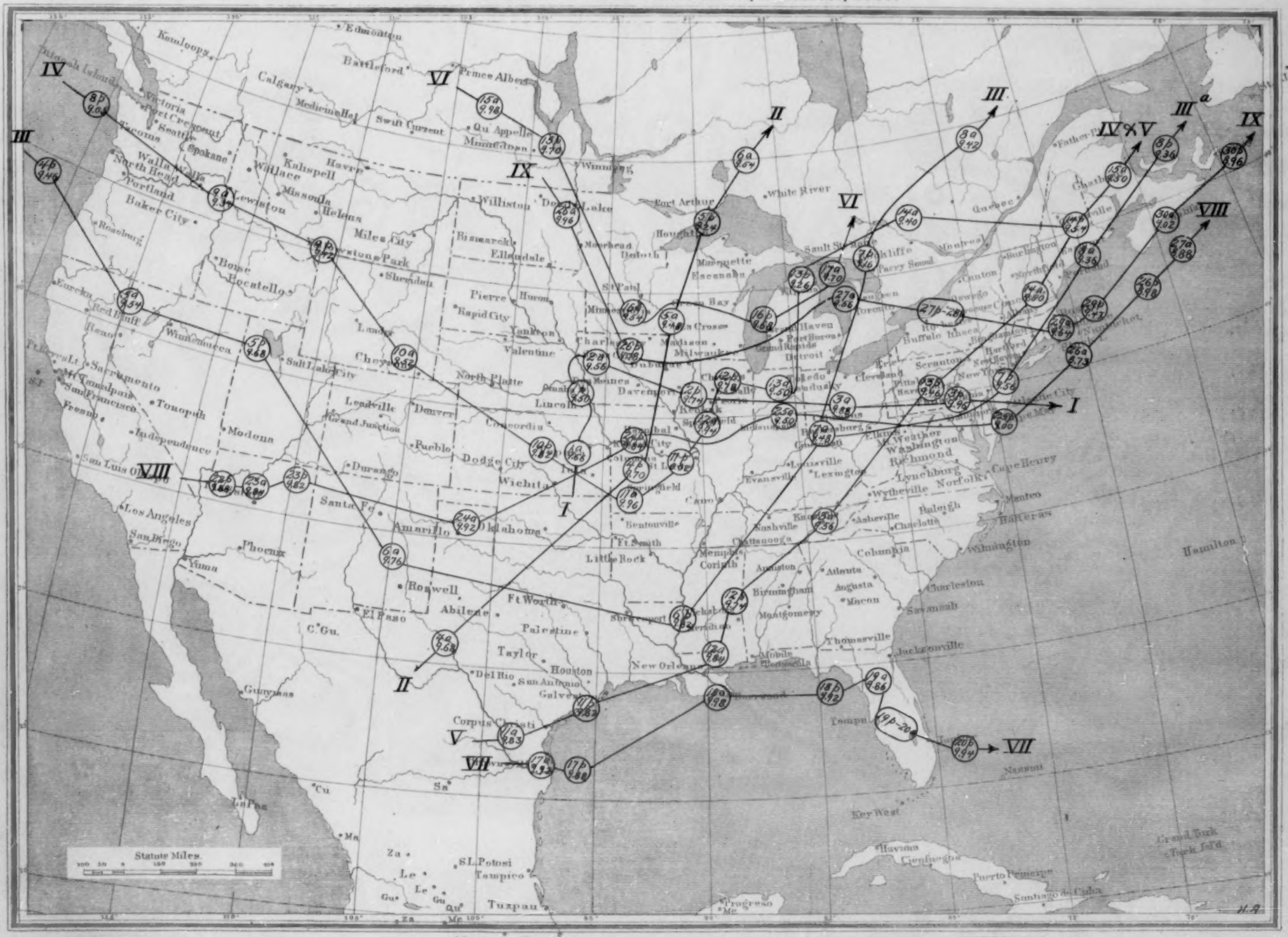


Chart IV. Departure of the Mean Temperature from the Normal, December, 1909.

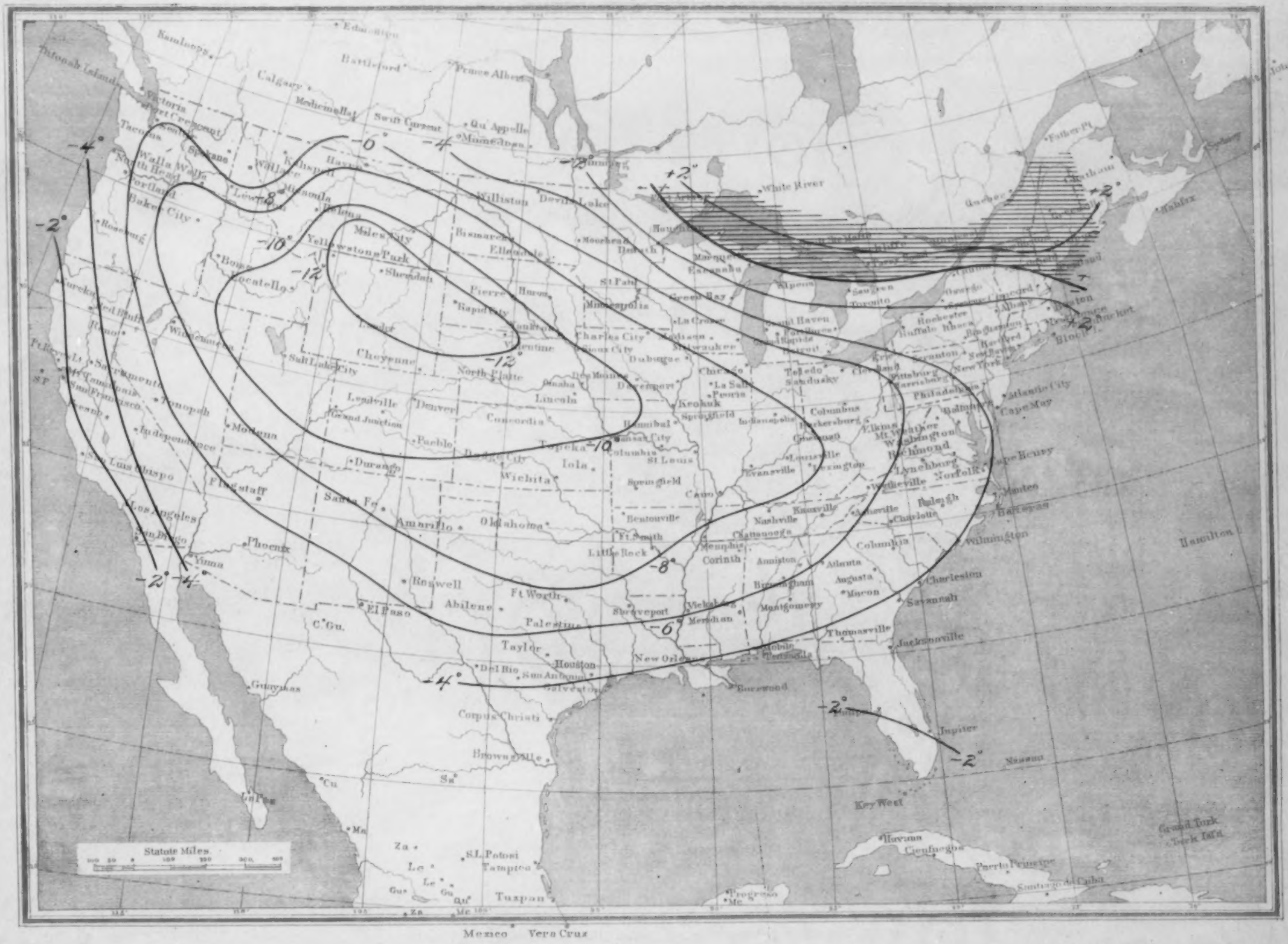


Chart V. Total Precipitation, December, 1909.

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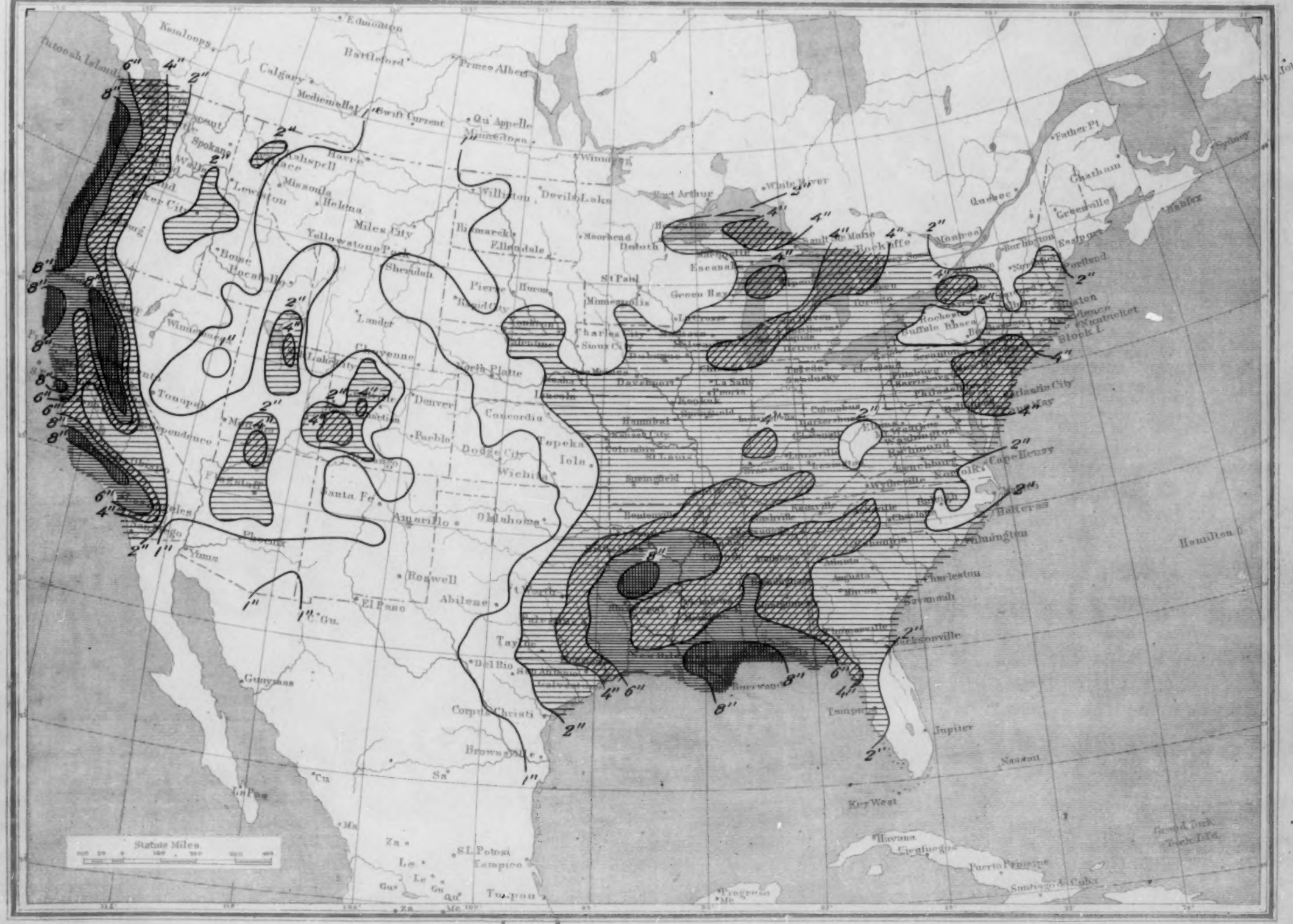

Chart VI. Percentage of Clear Sky between Sunrise and Sunset, December, 1909.

Chart VII. Isobars and Isotherms at Sea Level; Prevailing Winds, December, 1909.

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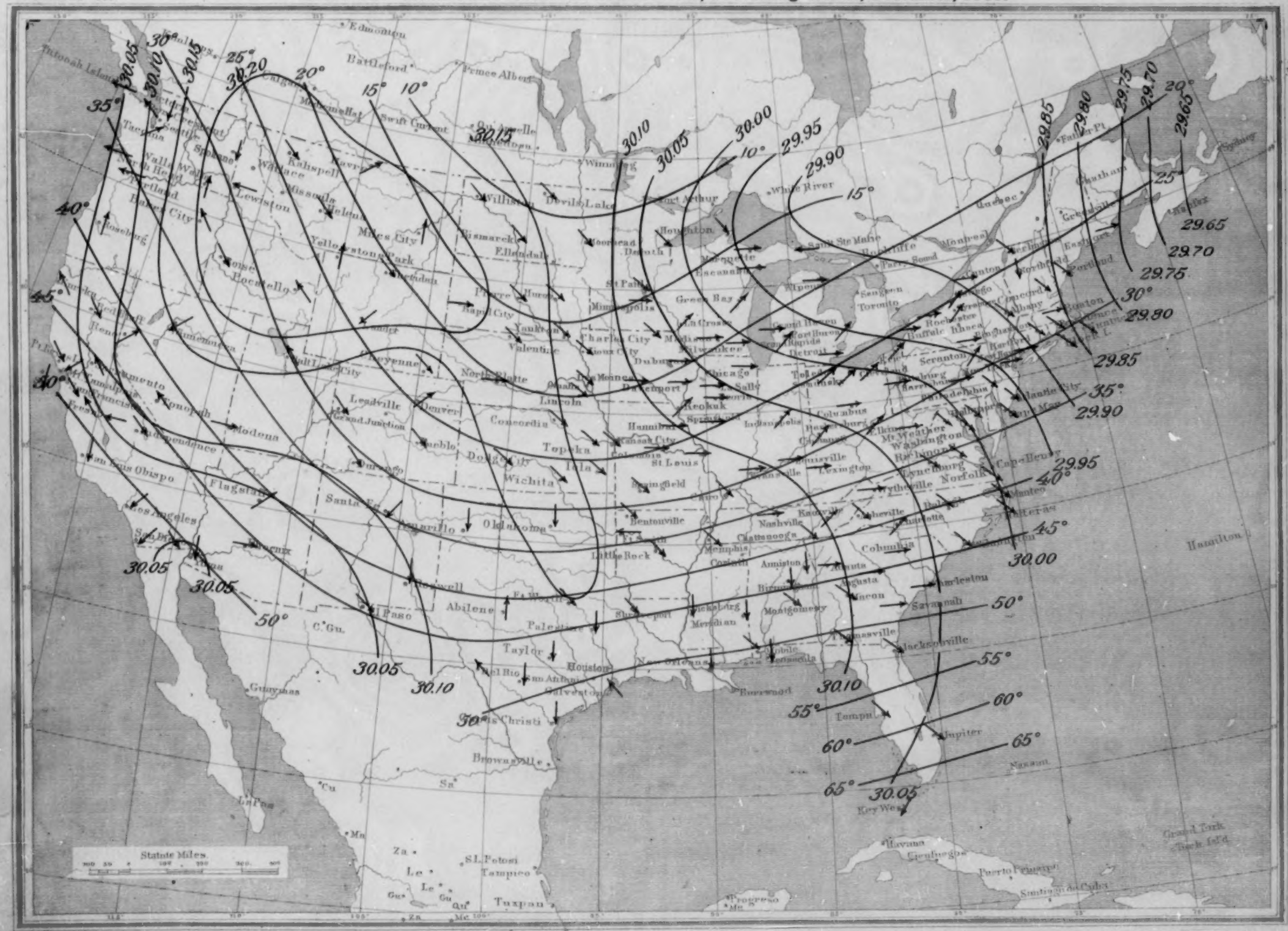

Chart VIII. Total Snowfall for December, 1909.

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